THE

UNITED SERVICE.

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APRIL 1894.

THE REORGANIZATION OF OUR ARMY.

"Men of thought, be up and stirring night and day;
Sow the seed—withdraw the curtain—clear the way."

So much discussion has arisen in the past few years respecting the subject of this essay, that it may appear presumptuous for me to attempt to say anything new; but have you thought that although the world has often been more warlike, it has never been more military than it is to-day? We are constantly recruiting, drilling, arming, and going through manœuvres of mock campaigns. Why do we do this? It is to systematize military action and leave nothing to chance; to absorb more of the energy and intellect of our military men, and to accustom the people to think of peace as but a truce. Everybody is fond of war in peace. Children love to hear martial music, tender girls and slender maidens worship brass buttons at balls and reviews; and was there ever a boy who has not, during some period of his youthful fancies, dreamed of becoming a great general? On the other hand, everybody is terrified into shuddering by the awful horrors of war in action,—devastating, mangling, murdering war, changing strong men to ashes, leaving parents childless, children fatherless, wives widowed, and maidens loverless and forlorn. Sensational! Ah! no pen can depict, no mouth can utter a thousandth part of the "sensation" that is witnessed by the field ambulance or hospital tent in every glorious campaign. Still, were war to come, we would all exult in the triumph of our arms, and even pious priests and prelates would render thanks to God the more fervently when the dispatches state that the slaughter has been greater of another people than of our own.

Look at the French Revolution. That volcanic force which shook the earth to its centre is never to pass from men's minds. With it there came a change in the composition and organization of armies which has had a very marked effect upon the military and political history of the world. How great this change has been may be apparent when we recall that only eighty years ago the host that Napoleon assembled for the invasion of Russia (four hundred and fifty thousand men) was likened to the great horde that Xerxes led into Greece; yet Napoleon, on that expedition, had not as large an army as France keeps to-day, during the silent slumber of profound peace. Not only are the standing armies of to-day larger than the armies of the last century, but they are trained to a degree of efficiency never even attempted by the military heroes of the past. We are just recovering from our own great war, and, during the past few years, a new impulse has been given to military education. Not only are greater facilities for instruction afforded to our officers, but a higher standard of professional knowledge is demanded; and it is insisted upon that the art of slaughter shall not be allowed to lag behind in the grand march of scientific education.

Unlike the nations of Europe, Uncle Sam has escaped militarism; but military sentiment is constantly increasing, and the people will wish to know more of the army in the future than they have known in the past. In 1860 the man who had seen military service was a notability in his neighborhood; but to-day the ex-soldier is encountered in every walk of life.

Our regular army at the time of President Lincoln's inauguration, March 4, 1861, consisted of ten regiments of infantry, one regiment of mounted rifles, two regiments of dragoons, two regiments of cavalry, and four regiments of artillery, in all about thirteen thousand and twenty-four officers and men. This force was increased at various times during the war to something over fifty thousand men, but it has been under the process of reduction so long that we now have only a trifle over twenty-five thousand men, which are divided into ten regiments of cavalry, five regiments of artillery, and twenty-five regiments of infantry of ten companies each.

A cavalry regiment is now composed of twelve troops, and is subdivided into three squadrons of four troops each. This is undoubtedly the best possible form of organization, easily admitting of further subdivision or of union into larger units.

In the artillery twelve companies also form a regiment, and this organization is maintained for the purpose of classification, but a single company forms a battery, and habitually a battery acts separately, but in concert with infantry or cavalry, and artillery officers differ widely in their opinions of the proper organization of this arm of the service. It is almost impossible, however, to perfect the organization of the

infantry and artillery without an increase of men, and a reasonable increase, say of five thousand men, would provoke no hostile demonstration towards Congress; but, on the contrary, would be regarded by the people as consistent with the policy of timely precaution. For we must have a sufficient military force to insure the respect that is due to the nation's lawful demands, both within and without our borders. Hence the minimum military force should not be less than one man for each two thousand souls of population; that is, one soldier for every one thousand male souls, or one soldier for every two hundred and fifty able-bodied citizens. I do not doubt that in case of a great crisis the force marshaled on the side of order and justice would always be found equal to the occasion; but, at the same time, when we consider the wealth of our great cities, it is not impossible that an infuriated mob might destroy more property in a single night than would pay the cost of maintaining a sufficient military force for many years.

The reorganization of our army was referred by act of Congress, July 24, 1876, to a commission consisting of two members of each House of Congress, the Secretary of War, and two officers of the army. What this commission did, except to collect a great mass of material that was never acted on, seems to be known only to the official archives, for the subject of reorganization has been going on ever since.

In the organization of an army two distinct but intimately connected problems present themselves,—first, what shall be the tactical organization; secondly, what shall be the administrative organization.

With regard to the tactical organization, the main features to be kept in view are, first, What formation is most suitable as a nucleus around which to build a much larger army in case of foreign war? secondly, What formation is best suited to protect the frontier both North and South, and to quell internal disturbances in time of peace?

Some may say in answer to the first, that the United States can afford to be unprepared for foreign war, because the causes of quarrel are so few, and the extent of our country so vast, as to render any invasion highly improbable, and an attack by an ordinary-sized army simply absurd. To a certain extent this is true, but it must be acknowledged that our military organization is totally insufficient for a first-class power. The army is the power that supports the dignity of the nation when the courts fail; hence we should look to the organization of the army as carefully as to the Department of State. And since it is our policy to keep as small an army as possible, and maintain our standing at the head of the family of nations, we should have the best possible organization; and there should be a law providing for the direct transfer, in case of invasion or insurrection, of such number of privates from the organized militia of the several

States as to fill up each of the various companies of the regular army to the maximum strength of one hundred men, without the slightest delay. Then it might be said that the regular army has a reserve. I think we have been very much misled by the use of this word reserve. In fact, we have no reserve properly so called; we have merely got the local militia in the old sense of the word, but under a new name, and the volunteers. Besides filling up the companies of the regular army there should be a designated series of reserves ready to assist the regular forces, and the President should have power to call them forth whenever he should deem it necessary, even to the extent of the whole male population in certain extreme emergencies.

This is an idea not superficial and fanciful, but strong and weighty. It deserves the most serious reflection and mature consideration of every prudent, practical man; and if such men will but pause to think earnestly, and meditate dispassionately on its vast importance; if they will but contemplate it in all its attitudes, and trace it to all its various consequences, they will not hesitate to part with trivial and chimerical objections to an increase of our army and a change in its organization.

There was a time, and not so very long ago, when the army was looked upon by some people as a menace to State institutions and civil liberty; and the inhabitants of one section of our country were praying that the army might be taken away, at least out of their vicinity; but there is litttle danger of the army ever being employed as an instrument to oppress the people. True it is that it might be possible for the President, during the recess of Congress, if he should be so arrogant, so ignorant, so reckless of the consequences, to bring on war by employing armed forces in a hostile manner; but must we expose our lives, our property, our national resources, to the tender mercies of a foreign invader, and invite him, as it were, by the weakness of our military establishment, to destroy our railroads and loot our defenseless cities, simply because we are afraid that the ruler of our choice, dependent on our will, might be so foolish as to endanger his own neck by an abuse of the means given him to provide for the protection of the nation.

The art of war, like most other things, is a science not to be learned in a day; but to be perfected only by diligence, time, and practice. Is this supported by reason? If you don't believe it, turn back to the commencement of our Civil War, and look at the battle of Bull Run. One glance will be enough.

"In tragic words here read what evermore
Should teach us to prepare in peace for war;
Pause here and think one moment and concede,
War is an art, not learned by all who read."

It was thought at that time that the unexpected defeat of the Union army was due to the raw militia, but it is now the general conviction of the country that the misfortunes of that day were not due so much to the faults of the troops as to the inefficacious combinations of the general officers. But, whatever may be the faults of the militia, and notwithstanding what has been written by those who seem to think that, like Baron Munchausen, they alone and single-handed could easily put the National Guard to flight, it should be remembered that from 1861 to 1864 the militia and volunteers by their faithful services, patriotism, and valor expiated the nation's want of preparation, and proclaimed anew the perpetuity of the Union. But there seems to be a confusion in our ideas as to the use of the militia. Some of our regular officers look upon it merely as a nursery for the line, a feeder of the regular army; while perhaps the militia, officer looks upon the militia as a service in itself, which is to be kept intact and placed in the finest and most complete working order. Whatever the decision may be, if we are to have a well-trained militia; if we are to have an efficient army, we must organize their tactical units upon a proper basis. Dr. Billroth, in his lectures on the wounded in war, estimates that eighty per cent. of all wounds were caused by rifles, about fifteen per cent. by large guns, and not quite five per cent. by lance and sword. These figures may at first be doubted, and appear to favor the infantry; but the doubt suddenly clears away when we read that Mr. Archibald Forbes says that the statistics for the whole war (on the German side) prove that over ninety per cent. of the wounds were due to rifle fire, about nine per cent. to artillery, and only one per cent. to cold steel. In the face of these facts we must conclude that the infantry is the most essential element of an army; in other words, I might say, the army is the great white elephant of war, of which the cavalry resembles the proboscis, or feeler; the infantry the body, or source of energy; the artillery the feet which, backed by the infantry, crushes everything within reach. But particular care must be taken that each part has its proper proportion, else the whole will soon break down if subjected to severe service.

Our national legislators seem to have lost sight of this, for the act of Congress reducing the army to a maximum of twenty-five thousand men provided that no reduction be made in the cavalry. But there is no doubt about it, the infantry is the main force which supports all. Upon infantry as a basis the whole organization of the army must be built; and the regiment should be in the future, as it has been in the past, the tactical unit of the army. Whatever may be the "fighting unit," whether it be one company or a battalion of four companies, its general direction in every important engagement will come from the regimental commander. Thus, with an army of thirty thousand men, I beg to suggest the following as a suitable organization,—viz., three

divisions of infantry, three brigades of cavalry, and three brigades of artillery. Since no legislation is necessary for the formation of army corps or armies, they being formed in case of war at the direction of the President, it is not necessary to establish any permanent organization for such large bodies, but each division should consist of three brigades under the command of a divisional general. Each brigade should consist of three regiments under the command of a brigadier-general. Each regiment of infantry should consist of three battalions, each composed as follows,—viz., each battalion of four companies of infantry, except the third battalion of every third regiment, which should consist of three companies of mounted infantry and one company of horse artillery with four light guns. Each regiment should have one colonel, one adjutant, and one quartermaster, who should also be regimental commissary. Each battalion should have one major, and each company one captain, one first lieutenant, one second lieutenant, and in time of peace fifty enlisted men. It is hardly necessary to remark that in the three-battalion regiment the rank of lieutenant-colonel should pass on to oblivion and exist no more. Surely he is not needed simply to say "officers, halt," at regimental parade.

The cavalry regiment should be formed the same as the infantry; that is, four troops to a squadron, three squadrons to a regiment, three regiments to a brigade. Each artillery brigade should consist of three regiments, each regiment of six batteries, each battery of one captain, one first lieutenant, one second lieutenant, fifty enlisted men, and four field guns. And above all things there should be no captains without companies to command. The idea of having skeleton companies is in every way subversive to the best interests of the service, and should not be tolerated by Congress.

From the above a general organization table may be deduced as follows:

	Divisional General.	Brigadier-Generals.	Colonels.	Majors.	Adjutants.	Reg'tal Q. M. and Com'y.	Captains.	First Lieutenants.	Second Lieutenants.	Serg't-Maj. and Q. M.-Serg't.	First Sergeants.	Sergeants.	Corporals.	Trumpeters.	Farriers.	Saddlers.	Artificers.	Blacksmiths.	Privates.	Total enlisted.	Aggregate.
Each company							1	1	1		1	4	4	2	1	1	1	1	35	50	53
Each regiment			1	3	1	1	12*	12*	12*	2	12*	48*	48*	24*	12*	12*	12*	12*	420*	602*	644
Each brigade		1	3	9	3	3	36*	36*	36*	6	36*	144*	144*	72*	36*	36*	36*	36*	1260*	1806*	1933
Each division	1	3	9	27	9	9	108	108	108	18	108	432	432	216	108	108	108	108	3780	5418	5800

* Artillery one-half.

Thus, with an army of thirty thousand men there would be sixteen thousand two hundred and fifty-four infantry, five thousand four hundred and eighteen cavalry, and two thousand seven hundred and eighteen artillery, making a total of twenty-four thousand three hundred and ninety enlisted men for duty in the line, and leave five thousand six hundred and ten men, which would supply all the various departments and corps now existing, and still leave sufficient men for the organization of a quartermaster corps, which is so badly needed.

It would be hardly proper to pass on without saying just a few words about the proposed artillery organization. The horse artillery of the infantry brigades will take the place of the present light batteries, and although this makes the infantry a little more complex, it simplifies the artillery proper; and as light guns will be needed with the infantry, it is thought better to provide a place for them in the infantry organization. Again, the history of the War of the Rebellion shows many changes in the organization of the artillery, but it became more and more manifest as the war progressed that the artillery should be formed into brigades, and the same reasons that rendered artillery brigades advisable then still exist. We should profit by the lessons taught in actual service, and seek to apply them during peace. As Mr. Home says, "An army will never fail so long as it can learn and apply a lesson."

The plan of officering the army from a military school is very excellent so far as it goes, but the Military Academy has not and does not graduate a sufficient number of cadets to meet the constant demands of the service, and additional officers are from time to time commissioned. These officers should be selected from the most brilliant and exemplary young men in the ranks of the army, and in time of peace no appointments should be made from civil life. The following clipping from a daily paper will probably show the reason why civilian appointments should not be made more clear than any remarks that I might here make:

"The *Register* says that Lieutenant Robert Sewell enjoys the distinction of being the only officer commissioned in the United States army in modern days without any examination whatever. Yes; and it might have added that his appointment was made clearly in violation of law."

However, it is not to the officering of the army in time of peace that I wish to call attention, but to the officering of the army in time of war. When the militia is employed in the service of the United States, the President should have power to appoint the officers in the same manner as they are appointed in the army. But you say the Constitution reserves to the governors of the respective States unrestricted authority to officer the militia. Well, I doubt it; for the Constitution distinctly declares that Congress shall have power "To provide for

organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States." Now, what do the words "organizing" and "governing" mean? They mean that just as soon as the State militia is mustered into the service of the United States it becomes a national militia, and that Congress shall have complete control. The President, then, becomes commander-in-chief, and Judge Story says, "Over the national militia the State governments never had or could have jurisdiction. None such is conferred by the Constitution of the United States, consequently none such can exist." And further, the statutes of some, if not all, of the States expressly prohibit the governor from being commander-in-chief of the militia in actual service; hence, under what color of authority could he appoint officers to the vacancies that occur while thus employed? And again, according to the executive construction of the act of July 17, 1862, contained in a letter from the general-in-chief to the governor of Missouri, "The organization must be by batteries and regiments, and the officers of such batteries and regiments are to be appointed by the State; but the division and army corps commanders are to be appointed by the President." Now, if the President can appoint a brigade commander, why can he not appoint a regimental commander whenever a vacancy occurs? Or, in calling out the militia, why not call out enlisted men only, and appoint the officers after muster? I leave this question to your future consideration, and pass on to that most comprehensive term,

ADMINISTRATIVE ORGANIZATION.

In the event of a foreign war we may safely calculate on being able to immediately place in the field at least one man for every one hundred souls of population, which, according to the late census, would give an army of about six hundred and fifty thousand men. The feeding, arming, clothing, and equipping of such a large army is a labor second only to that of recruiting and organizing it into tactical units; still, the subject of "administrative organization" relates not only to the entire subject of supply, but to the whole management of military affairs, both in peace and in war. Hence military administration practically divides itself into three parts:

1. The needs of the well men.
2. The care of the sick men.
3. The discipline of all.

Of all people, soldiers should be taught to be governed by their needs, not by their fancies.

Food, clothing, arms, ammunition, and pay may be denominated as the only requisites necessary for a soldier in the field. These needs should be supplied by but one department. This would not only prevent much friction and delay, but, in case of war, everybody would be

active, still there would be no confusion. The fact that there should be a well-organized quartermaster's department to provide all these needs will be apparent by a glance at our present system. The army register shows, if I counted them correctly, five hundred and eighty-two staff-officers. Of these, ten are brigadier-generals, thirty are colonels, fifty are lieutenant-colonels, one hundred and forty-eight majors, while the entire line of the army has but nine general officers, forty colonels, forty lieutenant-colonels, and seventy majors. No wonder the army is top-heavy. Even admitting that the engineer corps properly belongs to the line, there is still left too great a proportion of "staff-officers," both in numbers and in rank. Of course some of these officers handle bread, but don't fool yourself, they are in no wise the "staff of life" of the army. On the contrary, from their rank, numbers, and nearness to Congress and the Executive they have obtained for themselves independent departments, which are destructive of military organization and a bar to the harmonious dispatch and economical administration of army affairs.

It has become a very popular thing to advocate economy in the army, and to effect this efforts are made to reduce the pay of the adjutant and quartermaster of the regiment, while the staff, which is the real source of expense, is never touched. Now, would it not be a wiser policy to reduce the rank and pay of the chief signal officer and the chief of ordnance, and let the regimental adjutants and quartermasters alone? And further, by consolidating with the quartermaster's department the subsistence, pay, and inspector-general's departments, the number of high-ranking officers of the staff could be greatly reduced; at least there would be no need of but one brigadier-general, while now there are four.

Perhaps a suitable and efficient organization for a consolidated quartermaster's department would be one brigadier-general, three colonels, fifteen lieutenant-colonels, twenty majors, fifty captains, and two thousand enlisted men. This would give one brigadier-general at army head-quarters, one colonel at each division head-quarters, one lieutenant-colonel at each brigade head-quarters, and leave the majors and captains for assignment as assistants. The enlisted men would supply the place of the clerks, artisans, and teamsters now taken from the fighting strength of the companies.

A certain number of the majors or captains should be charged with the duty of paying the brigades, turning over to each regimental quartermaster sufficient funds to pay his regiment, each colonel supervising the payment of his command. If the regiment is not all at one station, the regimental quartermaster could either pay the detached companies in person, or send the funds to the quartermaster of their post or station. So far as inspection is concerned, each regimental and brigade commander should be charged with the inspection and

efficiency of his command, recommending to his superior from time to time whatever he deems necessary for the welfare of the troops under him. The accounts of the disbursing officers should be inspected by expert accountants specially selected from the captain quartermasters for the purpose. Would not an organization of this kind, working under the control of one mind, be far superior to the present system, under which the quartermaster's department builds the bake-shops, the subsistence department the ovens, and the post treasurer has charge of baking the bread? Surely this arrangement is as hurtful to the efficiency of the army as it appears ridiculous. With such a division of responsibility, is it any wonder that in time of war the soldier goes sleeplessly searching for food? "We read much of the battles round Metz; of the skill displayed by the generals on this side, of the mistakes made by those on that; of the gallant conduct of the soldiers of two great nations. We read long lists of killed and wounded, but we hear little of the many human lives lost by fever, cold, hunger, and want round the beautiful city of Lorraine."

Our army is unlike the armies of Europe. All our citizens, even the poorest, are accustomed to a plentiful supply of the necessities of life, and to preserve their health in camp a continuation of their regular mode of living must, so far as practicable, be provided. The American would starve on what the Dago would live with comfort, and this is the very reason why we should have not only a good, but the very best, system of supply. Napoleon said, "War is the art of being the stronger on a certain point;" and he might have added that the strength of the army's stomach is far more important than the strength of field-works. Give an army plenty of food, plenty of clothing, plenty of bullets, and you will always have an efficient fighting force.

THE CARE OF THE SICK.

In every army there are more or less sick men, and this is especially true of an army raised suddenly, as ours must needs be, in case of war. In reporting about the Army of the Potomac, Dr. Tripler said, "It seems as if the army called out to defend the life of the nation had been made use of as a great eleemosynary institution for the reception of the aged and infirm, the blind, the lame, and the deaf, where they might be housed, fed, paid, clothed, and provisioned, and their townships relieved of the burden of their support." In time of peace men physically disqualified for soldiers may be kept out of the service, but in time of war they will creep in, whether their motive for hoodwinking the examining surgeon be patriotism or personal aggrandizement. Once enlisted, they must be kept well as long as possible; hence the first duty of the surgeon is to preserve the health of the well, and his next duty will be the caring for the sick and wounded, and the procuring of supplies for their proper treatment. Perhaps

shelter, medicine, and food are the principal things that the soldier patient needs, and for the purpose of supplying these an ambulance corps is formed. The field ambulance system was adopted about a hundred years ago. Before its adoption wounded soldiers were either carried to the rear by their comrades, or left to lie, unheeded, where they fell, until after the fighting had ceased; and it was not until near the close of the Rebellion that an ambulance corps was brought to a high state of efficiency. In fact, ours was the nation that first demonstrated its usefulness, and at the close of the Rebellion our ambulance system was the best in the world; but the conditions of modern warfare, the immense increase in the range of rifles and rifled artillery, calls for a more perfect system than we even then had. I do not mean by this that the surgeon is expected to perform capital operations on the battle-field, but he must be prepared to apply such remedies as will facilitate the removal of the wounded to a place of safety without causing them unnecessary pain. Therefore, taking a battle as it would be fought to-day, it is evident that these remedies should be applied at three principal points,—viz., first, at the ambulance station, which should be selected at a point just outside the zone of rifle fire. To this place the wounded should be carried on stretchers or otherwise; the first dressings applied, the colored badge fastened to the clothing of those who need immediate attention; and they should then be placed in the ambulances and sent to the rear, beyond the zone of artillery fire, where the second or operating-station should be established. Here the patient should be made as comfortable as possible, and such amputations as are absolutely necessary should be quickly made, and the patient then conveyed to the third station or field hospital, established at some convenient place about three or four miles in rear of the fighting line, where definite treatment could be adopted until such time as he could be removed to a general hospital.

Such a system could be made very efficient with the following organization of the medical staff,—viz., one surgeon-general at army head-quarters; one surgeon (colonel) at each corps head-quarters; one surgeon (lieutenant-colonel) at each division head-quarters; one surgeon (major) at each brigade head-quarters; and three assistant surgeons (one captain, one first, and one second lieutenant) for each regiment. Although three assistant surgeons to a regiment are more than are needed to give professional attendance in time of peace, yet this number would be required in time of war, and the great object is to have one organization applicable at all times.

Last, but not least, comes

THE DISCIPLINE OF ALL.

"Good order and subordination, so useful in all places, are nowhere so essential as in an army. The government ought precisely to de-

termine the functions, duties, and rights of all military men, soldiers, officers, chiefs of corps, generals."—Vattel.

Discipline is what keeps an army from becoming a lawless, riotous, uncontrollable mob; and there is no class of people so fond of having their own way as the Americans. They are educated from the cradle up to manhood to think and act for themselves. The spirit of independence is breathed into the nostrils of the babe, only to come out in after-life; and this is the reason why strict, rigid, equitable rules of discipline are especially essential to the organization of our army, in order that it may be instructed and moved in accordance with the will of one man. We need a discipline that will quickly transform a confused multitude of men, hurriedly brought together, into a trained body of obedient troops.

The nature of the American recruit does not take kindly to discipline, and it is only by continued and enforced exactness and punctuality that makes him finally accept cheerfully the exigencies of military service. But every people and every army have their own peculiarities, and it is worse than useless for us to attempt to copy from the English, second-hand from Germany. What we need is an American army founded upon American ideas, and organized to suit our republican form of government. After war has once been declared, the rapid means of transportation now existing admits of but little discipline being given before mobilization; therefore all of the various parts of the military machine should be carefully wrought out in time of peace, so that when war comes they may be all readily made to work for the one great end, victory.

The regular army must ever stand as a model for the militia, but the great dispersion of the troops over the entire country, with colonels who seldom see their regiments and generals who know little or nothing of their officers, makes the matter of discipline somewhat difficult. I do not believe in any species of familiarity between officers and enlisted men, for familiarity is bound to breed contempt and weaken authority; but I do believe that there is nothing more important to good discipline than that continuous chain of responsibility which should exist from the most exalted general to the lowest private. Is the army well disciplined? Oh, ask me not to write the answer! for fear that I might shock the modest dignity of some kind friend by an unguarded sentence; but let me quietly whisper in your ear that a few golden rules of discipline would not be amiss.

The writer trusts that the language employed in this essay will be attributed solely to his wish to benefit the army, and not to undue confidence in his own opinions.

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ABOUT HUNTING AND SNAKES.

I WANT to try to show, by this paper, how a hunter can have an interesting and exciting day without killing game, or even getting a shot,—that is, if he is in a rattlesnake country. I will tell the story and give the incidents of the day as nearly correct as it is possible to remember; and I have told it so often, and it was so amusing to my friends, that I have no fear but that I will give the facts just about as they occurred. But in doing this my reputation for "pluck" and skill as a hunter may suffer a little.

It was some years before the war, when game of every kind could be found near almost all of our military posts in New Mexico, and at this particular time I could, from the front door of my quarters at the old post up against the bluffs at Fort Union, see at one time nearly any and every day several hundred antelope on the plain between the post and Turkey Mountain, five or six miles to the east. There were no locomotives, cars, telegraph wires, nor poles then to frighten them away or make them wild.

I had been having very bad luck in hunting, while Captain Shoemaker (military store-keeper) had been killing an antelope, and sometimes two, nearly every time he went out, which was once or twice a week. Consequently, I determined to go beyond and on the east side of Turkey Mountain for a day's hunt, and so started out one morning very early for a long day, hoping to find the game less wild than nearer the post.

Turkey Mountain runs north and south, or nearly so, and seems to have been pushed up, from below, by some gigantic force, five or six hundred feet (at the highest point) above the general level of the plain, on all sides of it. It is about twelve or fifteen miles long, and perhaps six miles across from base to base. It is very rocky and uneven, and is or was thickly wooded (generally with pine) from the northern end to within two or three miles of the southern end, where the trees disappear or never grew, and at which point there is a plainly-marked crater of an extinct volcano.

My route from the post was direct to this crater, and of course to the extreme southern end of the mountain. There is a gradual ascent from the plain, from the east and west, to the rim of the crater, which

is almost an exact circle, except at the southern side, where the lava seems to have broken away and poured out over the country to the banks of the Moro River, some miles away to the south.

This place was at that time a favorite spot for antelope, as the inside of the crater, after ages, perhaps, had accumulated soil sufficient to make a smooth surface and produce a fine crop of sweet grass. It was from a quarter to half a mile, in a straight line, across the crater from rim to rim, and there was a gradual descent from the rim on all sides to the bottom, which was three or four hundred feet lower than the top, or rim. The topography of the country here, and in the vicinity, was favorable to the hunter, as the ridges of lava and the many boulders lying about furnished him good cover.

But, to my surprise there was not on this occasion an antelope to be seen in any direction, which at once led me to suppose that other hunters, or lurking parties of Indians, had been there before me on this particular morning, all of which had a tendency to make the hunt decidedly more interesting.

Finding no game here, I moved on to the east until I had well cleared the southern end of the mountain, and then turned almost directly north, keeping close to the edge of the timber on the left and west in order not to be forced out on the plain to the east, if there should be Indians hiding near the mountains in the timber. In this way, in case of trouble, I would have had a fighting chance of passing through the timber of Turkey Mountain to the west, and would have probably reached the post in safety.

For many miles I saw no antelope or any other living thing in the shape of man or beast. This was so remarkable for that section of country at that time, I felt certain some unusual thing had frightened the antelope away. And to make my mental eyes, as it were, grow larger, I could by looking away off to the east over the plain see very distinctly "Wagon Mound," a place on the "old Santa Fé trail," which had become celebrated as the scene of many Indian fights with white traders bound for Santa Fé, before the Mexican War, and of course before Fort Union was ever thought of, and when "Kit Carson," "Maxwell," and "St. Vrain" were boys. So, calling to mind the written and unwritten history of this celebrated place, the stories told of men who heroically fought and died, had a tendency to give to every bush and stone an Indian.

However, I pulled myself together and rode boldly on to the north, and don't know to this day the cause of such an entire absence of game from a country where usually there was so much.

In the afternoon, when well abreast of the northern end of Turkey Mountain, but some miles to the east of it, and about fifteen miles from the post, I saw quite a large herd of antelope quietly grazing, and as the cover and wind were all in my favor, my hopes were high for game.

I approached to within sixty yards of the herd, and was well covered by a little hill or ridge, and felt almost certain that in five minutes I would have an antelope to take back to the post.

I dismounted quickly, laid my rifle on the ground, unfastened the lariat from its place just behind the saddle, took the picket-pin in my hand (the other end of the lariat was around the horse's neck), and then found a stone to drive it into the ground. After about the third stroke with the stone I felt a sharp sting on the back of my left hand, and at the same moment heard the rattle of a snake, and saw within a few inches of my hand the last half of a large and horrid-looking rattlesnake just about to disappear in a hole in the ground. His tail was in the air for a second, and his rattles seemed to wave as a flag, in triumph, as much as to say, "Ah, I have got you this time!" I had made it a rule to kill, either by shooting, or with stones or sticks, every rattlesnake I saw. But this time I thought the "boot was on the other leg."

I immediately examined my hand, and sure enough there were the two punctures, just the distance apart to correspond to the fangs of a snake. I was of course frightened almost out of my wits, and my case looked very serious indeed. I was twelve or fifteen miles from the doctor at the post, and knew that a very rapid ride would cause the blood to circulate faster and send the poison through the veins all the quicker, and, on the other hand, if I rode slow, the loss of time would bring about the same results. All these things and many more passed through my mind in the few minutes occupied in pulling the picket-pin out of the ground and putting the lariat back in its place. Shooting at the antelope I don't think entered my head. I was in great doubt how best to proceed, but finally acted on the rule laid down for old-fashioned whist-players,—*i.e.*, "when in doubt play a trump." *I took a drink*, and a *big one*.

I put the flask back in the saddle-bags, picked up my rifle, and mounted at once, and in a few moments was going at a gallop towards the post, and watching all the time for the swelling to begin in my snake-bitten hand, and to my consternation I thought I could see it was getting larger. I also began to feel *very warm*, which was to my mind evidence that the poison was doing its deadly work. I then pulled up and took the walk, and finally halted long enough to take another drink, knowing if I could get thoroughly under the influence of the brandy there would be a chance for me. This time I took "a whopper."

After this I rode quietly along for a short time, and tried to cool down, and made desperate efforts to be a philosopher, and die, if I had to, like a man and a *soldier*. But I soon found I could not play that *rôle* worth a cent. I did not want to be a philosopher and I did not want to die. I did not like the idea at all of being found on the

prairie by my friends, swelled up like a dead toad, and black and ugly from the effect of the snake-bite.

It all of a sudden struck me that I was not feeling so very badly; in fact, I felt just at the minute very *familiar* and *good*. Thought I had felt that way on some other occasion. I knew I had never before been snake-bitten.

I succeeded, after a great effort, in not looking at my bitten hand for several minutes; but finally, feeling so much more cheerful and hopeful, I determined to peep at it again, trusting that my fears had made my case much more serious than it really was. With this feeling I slowly raised the hand (it seemed very heavy) before my face. I let it drop to my side with a feeling of horror, and realized that there was *no hope!* The hand appeared to be much swollen, and my whole body seemed to take on a feeling of weariness and lassitude that I thought preceded immediate death.

I laid my rifle on the saddle in front of me and then raised both hands together that I might see just how much the left one was swollen. To my amazement the right one was just as large as the left, and not only that, there seemed to be several pairs of hands; in fact, the air was full of them, and all badly snake-bitten. It suddenly occurred to me that I was *very drunk*, and at the same time realized that I could not be badly poisoned, or the brandy would not have taken effect so soon. Thinking the matter over for a moment, I remembered how hard it was to make a man drunk who had been bitten by a rattlesnake, while I had got very drunk without the slighest difficulty and in short order.

When it fully dawned on my benumbed brain that I was not bitten, I gave one wild, joyous whoop, and then broke out into a series of Indian yells. I leaned forward, or rather fell, on my horse's neck and began to laugh, and *roared*, in a drunken way, until I was almost exhausted, as the reaction from, as I supposed, almost immediate death to life on the prairies, and horseback, was almost too much happiness for my shattered nerves. However, I had to brace up and look sharp, as a big revolver belted around my waist, a heavy rifle and a frisky horse, with the load of brandy I had aboard, were just a little more than I could manage with dignity and ease.

I straightened myself in the saddle and tried to ride like a soldier; but I had many scrambles to hold on to my rifle, keep both feet in the stirrups, and remain in my seat. I was, however, too much delighted at my reprieve from death not to rejoice and have a *howling* good time at the unexpected and delightful termination of the snake-bite.

I very soon got into an argument with myself. I seemed to be *two fellows*. The sober lieutenant was saying to the lieutenant who was drunk something to this effect: "You are a pretty fellow, you are; scared to death because pieces of the stone broke off when you drove

the picket-pin in the ground, struck your hand, and made the blood come, but you ought to be court-martialed for cowardice;" and "I suppose you think you ought to have a *brevet* for this day's work. Pretty soon you will fall off your horse and *lose your hair.*" "You go to hell—mind your business—damn Injins—whip forty—go way." And a lot more of the same kind.

My whole mind was given to my horse and rifle, and to keep from falling off. I rode slowly and carefully, as I understood how important it was for me to remain mounted, for had there been no danger from Indians there were many chances of meeting small parties of prowling Mexicans, who very probably would have thought the possession of a good rifle and revolver and a few dollars sufficient inducement to commit a murder, especially if the man was drunk and helpless, and an "American."

As the effect of the brandy began to die out a feeling of *pathos* crept over me. I wanted to *weep*, and felt *religious*. If I had had a friendly breast on which to lay my head, I think I could have *sobbed* with pleasure. But my horse would allow no fooling of that kind about his neck; consequently I was forced to "sit up," and did not enjoy myself as much as one who had suffered so greatly ought to have done.

I was, however, rapidly becoming sober, and was growing *very sleepy*. But, as I was now in the wagon road leading from Fort Union to Maxwell's ranch and the Arkansas River, and again on the west side of Turkey Mountain, I felt as if I was getting "out of the woods," as a few miles farther on I would reach a point from which I could see the post, although eight miles away.

Feeling more secure in the saddle, I increased the gait a little, and soon reached the top of the ridge from which I could see the post (the old one); but, strange to say, I could not see an antelope at which there was any chance of getting a shot, even had I been in a shooting condition.

A few miles farther brought me close to some ponds, within five or six miles of the post, and I discovered there was a small flock of wild geese on one of them. I thought perhaps I was near enough to my normal condition to get the better of a goose, so rode off to the right (west) of the road, dismounted (with some difficulty), and made my horse fast to some volcanic rocks; but I had not gone far towards the geese before I discovered that he seemed very much excited, and was dashing about from side to side and straining hard at the lariat. I knew there was some unusual cause for this, so turned about and watched. In a few minutes three or four men on ponies, a half-mile away to the west, showed themselves for a second and then disappeared. The surface of the ground between me and these men was rough, and although there was no timber, a party, with care, could have ap-

proached me without attracting attention under ordinary circumstances; but fortunately I looked in their direction just in time, for when the nature of the ground compelled them to show themselves again they were much nearer, and on their third appearance were still nearer, and evidently trying to get between me and my horse.

I waited for no further developments, but returned to my impatient and frightened horse as rapidly as possible. I knew the men were either Mexicans or Indians, and from their manner of riding thought they were Indians; if so, I should be on horseback, as I could then fight or run away, whichever should prove to be best.

I lost no time in unfastening my horse and putting up the lariat and making an attempt to mount. For some minutes it was only an *attempt*, for just as soon as I raised my foot to put it in the stirrup he would give a plunge and try to be off. I, however, gathered the reins up short and tight in the left hand, and at the same time grasped a portion of the mane with the same hand, threw my right hand (which held the rifle) and arm well over the saddle, quickly placed my left foot in the stirrup, and made a quick spring and threw my right leg over the cantle, but failed to take an upright position, as the horse gave a bound forward at the same time I made the spring to mount, which left me hanging on his side like a monkey who was trying to dodge the whip of the "ring-master" on the other side. With me hanging in this ungraceful position my horse went thundering across the plain to the east, in the direction of the road, as if Old Nick was after him, and it was a run of nearly a quarter of a mile before I got into the saddle. If I had been in a circus rig and had performed such a feat of riding on my horse's *side*, I would have "brought down the house."

As soon as I got well into the saddle I regained control of the horse and brought him down to a walk, and almost immediately was in the road leading to the post. Looking back, I saw the men occupying the position I had just left.

I felt entirely exhausted, broken down, and defeated at every turn, and had only strength to relieve my feelings by sighing out the expressive words, "Well, I'll be damned!" I rode slowly and sadly towards the post, which was only a mile or two away.

I had had what one might call "a full day." I had ridden over thirty miles, been bitten, as I supposed, by a rattlesnake, got drunk and sober, was at the point of death and had recovered, and all this within twelve hours of the same day.

I rode quietly to my quarters, dismounted, sent my horse to the stable, and *went to bed*, feeling thankful that I had a *back* and a comfortable place to put it.

W. B. LANE,
Brevet Lieutenant-Colonel U.S.A.

OLD POINT, VIRGINIA.

THE COLORED AMERICAN AS A SOLDIER.

AMONG the military matters coming regularly before the Fifty-second Congress was a proposition to reorganize the artillery and infantry arms of the service.

Had the changes sought in this proposition been secured, the field of the colored man in the army would have been considerably enlarged, and the number of colored men in the service thereby have been increased.

Hitherto there have been four regiments in the service—to wit, the Ninth and Tenth Cavalry and the Twenty-fourth and Twenty-fifth Infantry—of which, according to the law creating them, the enlisted men have been colored men. It is now proposed to confer authority on the President to direct, at his discretion, the enlistment of batteries of colored men to serve in any or all of the regiments of artillery as well.

This movement would indicate that the colored soldier, who won such favorable recognition during the closing period of the Civil War, has been able to maintain the same honorable standing during the long period of exacting frontier service which has followed.

These colored regiments have passed all this time, with but little exception, in places far away from popular view, and amid dangers as great and hardships as severe as have been shared by any part of the army. In this dull and trying service they have been carefully weighed in the balances of usefulness, and the general testimony of those whose words are entitled to special weight is, that they have not been found wanting. In encounters with robbers and Indians they have manifested both skill and bravery; so that out of ninety-three medals and certificates won for gallantry by the enlisted strength of the army up to 1892, twelve were won by colored men, which is one-third more than their proportion.

Generally quite as hardy as white troops, their record in the surgeon-general's report for 1892 presents the two following noteworthy facts: The death-rate among the white troops was 8.16 to the one thousand; among the colored troops, 7.11 to the one thousand. The admissions to the hospitals for alcoholism among white troops were 44.91 to the one thousand; among colored troops, 4.36 to the one thousand. Twelve years' experience by the Twenty-fifth Infantry, and

a very hard winter's experience by the Tenth Cavalry, in the Department of Dakota, prove beyond question that colored troops can stand the cold as well as other troops; and if well cared for, they are as well contented when the mercury is twenty or thirty below as when in "the land of cotton." An interesting sketch of the Tenth Cavalry, recently published, shows that from the time of its organization in 1866 up to 1891 it had participated in four campaigns, and had been engaged in over a dozen Indian battles and skirmishes. The reputation of the Ninth Cavalry, long established, received its latest touches of splendor in the Sioux campaign of 1890, in consequence of which it now has one troop stationed near Washington, D. C., and sent four troops to the opening of the World's Fair.

Through the kindness of Captain D. B. Wilson, of the Twenty-fifth Infantry, I am able to present the following remarkable sketch of the active history of this regiment (the Twenty-fifth), with special reference to its marches,—matter never before published. The whole regiment, in two battalions, left Louisiana in May, 1870, by steamship, and landing at Indianola, Texas, marched the first day (from three o'clock in the afternoon to two o'clock next morning) a distance of twenty-two miles, in order to reach water. In view of the fact that the men were unaccustomed to marching, and that the journey was made largely at night, this march was regarded as phenomenal. It was followed up, however, by daily marches until San Antonio, a distance of one hundred and fifty miles, was reached. From San Antonio the several companies were ordered to posts as follows: To Fort Bliss, seven hundred and forty-four miles; to Fort Stockton, five hundred and thirty-nine miles; to Fort Davis, six hundred and fourteen miles; to Fort Clark, two hundred and seventy miles; to Fort McKavit, three hundred and thirty miles.

In July, 1871, the two companies of the Twenty-fourth Infantry stationed at Fort Clark and the two companies of the Twenty-fifth Infantry stationed at Fort McKavit interchanged stations. The distance between the posts was one hundred and forty-eight miles, and the country entirely uninhabited, wild and rugged, and withal a natural harbor for predatory bands of Indians, renegade Mexicans, and American fugitives from justice. These companies passed through this wild region with all their baggage, with not even as much as a trail to guide them, and made the journey nearly as quickly as footmen would have done it over ordinary roads. In May, 1872, the head-quarters and six companies of the Twenty-fifth Infantry left Fort Clark, Texas, for Fort Davis, Texas, a distance of three hundred and seventy miles. Leaving two of the companies at Fort Stockton, distant from point of starting about two hundred and seventy-five miles, companies I and C set out on July 24, under orders, and marched to Fort Gibson, Indian Territory, a distance of eight hundred miles, arriving there September

4, 1872. In May, 1875, they made the same long journey back, and in June following took the field in a scouting expedition of about seven hundred miles over alkali plains.

From 1875 to 1880 the regiment had permanent stations in Texas, but the men were kept in a state of constant activity. In 1880 they were transferred to the Department of Dakota. Thirteen years in this department, they have performed to satisfaction all the duties required or expected of them.

Captain Wilson expresses himself in words of highest praise in regard to the colored soldier's efficiency generally, and has no patience with that maudlin and, as he says, effeminate military aristocratic sentiment that fears to come in contact with the negro in the army.

Captain George Andrews, of the Twenty-fifth, thus sums up the experiences of the regiment in Texas: "The history of the ten years' service in Texas is the record of a continuous series of building and repairing military posts, roads, and telegraph lines; of escort and guard duty of all descriptions; of marchings and countermarchings from post to post, and of scouting for Indians which resulted in a few unimportant skirmishes." This explains the meaning of Captain Wilson's remark that the regiment was kept in a state of constant activity.

To this recital of facts I beg to add the following highly important and valuable testimony. Colonel A. S. Burt, who served in the late Civil War and won distinction therein, and who has since added to the lustre of his record in active frontier service, has recently assumed command of the Twenty-fifth Infantry; and it is but just to say of him that no man was ever prouder of his command. In reply to my inquiries he expresses himself as follows: "I have never served with colored troops in the presence of an enemy, but there are many instances on record of their efficiency in the field. My experience with colored troops in garrison has been very satisfactory. They are capable, in my opinion, of the highest state of discipline."

Colonel James Biddle, of the Ninth Cavalry, says, "I have been with this regiment but a comparatively short time, and never in action; but I have served with colored soldiers in action, and the list of casualties was equal to those with white troops. In garrison my soldiers are the peers of any, and I doubt not would prove the same in action."

Brigadier-General Wesley Merritt, commanding the Department of Dakota, responded so generously to my inquiry that I take pleasure in presenting his letter entire to the reader.

"CHAPLAIN T. G. STEWARD:

"DEAR SIR,—In reply to your communication, I take pleasure in bearing unequivocal testimony to the efficiency of colored troops under

all conditions of the service. My experience in this direction since the war is beyond that of any officer of my rank in the army. For ten years I had the honor of being lieutenant-colonel of the Ninth Cavalry, and during that service I commanded garrisons composed of the Ninth Cavalry and other colored organizations of cavalry and infantry. I have always found the colored race as represented in the army intelligent and zealous in the discharge of duty, brave in battle, easily disciplined, and most efficient in the care of their horses, arms, and equipments. The non-commissioned officers have habitually showed the qualities for control in their positions which marked them as faithful and sensible in the discharge of their duties. I take pleasure in bearing witness as above in the race which you represent.

"Very respectfully,

"WESLEY MERRITT,

"*Brigadier-General, Commanding Department.*"

With the above military testimony I desire to submit also the following from the mayor of Missoula, near which city the head-quarters of the Twenty-fifth Regiment has been stationed for the past half-dozen years:

"Replying to yours of yesterday, I have to say that the general character of the colored soldiers of the Twenty-fifth Infantry stationed at Fort Missoula, as shown off duty, has always been good. They give the city authorities no trouble whatever, and are more orderly and gentlemanly than the white troops who were here before them."

Among the colored soldiers are five commissioned officers of the same race, three chaplains,—Rev. H. V. Plummer, of the Ninth Cavalry, Rev. Allen Allensworth, of the Twenty-fourth Infantry, and Rev. T. G. Steward, of the Twenty-fifth Infantry,—and two lieutenants.

As an indication of their general standing, I may quote the following from the report of General McCook, of the Department of Arizona (formerly), with reference to Chaplain Allensworth. Referring to schools in the army he says, "Under the present arrangement I submit a system of progressive education for the enlisted man, carefully prepared by Chaplain Allensworth, of the Twenty-fourth Infantry. I recommend its adoption, for good will flow from its use."

Chaplain Allensworth was detailed for special duty at the World's Fair, and rendered great satisfaction.

The four sergeant-majors of the colored regiments deserve special notice as the ranking non-commissioned officers. Sergeant-Major Jeremiah Jones, of the Ninth Cavalry, was born in Maryland, enlisted in 1881, and has been sergeant-major since 1885; was in one engagement with Indians; character, excellent. Sergeant-Major Edward Lee

Baker, Jr., of the Tenth Cavalry, was born in a freight-wagon on the North Platte River; enlisted in 1882, and speaks of himself briefly and soldierly as follows: "I have two excellent discharges. I have never been placed in arrest or confinement. I have had very hard field service in Colorado, Utah, New Mexico, Arizona, and Indian Territory, and have also served two years with a troop of cavalry in the Northwest." Sergeant-Major James W. Abbot, of the Twenty-fourth Infantry, was born in Kentucky, enlisted in 1881, and has done clerical work since 1882; has been sergeant-major since 1889; was sergeant-major of the battalion to meet the President in New Mexico in 1891. Sergeant-Major James J. Johnson, of the Twenty-fifth Infantry, was born in Louisiana, enlisted in 1862, and was made sergeant-major in 1878; he is an excellent soldier, and in a few months will go on the retired list, having completed thirty years in the service.

Notwithstanding this good record and these splendid testimonials, the writer hereof cannot refrain from saying that he hopes the day will soon come when there will be no more colored soldiers in the army of the United States, but that the special defenders of the flag shall be simply Americans,—all.

T. G. STEWARD,
Chaplain Twenty-fifth Infantry, U.S.A.

THE SECRETARY OF WAR, DANIEL SCOTT LAMONT.

SECRETARY DANIEL SCOTT LAMONT is the youngest man who has ever held the office of Secretary of War, although he is the fiftieth incumbent of the third seat in the Cabinet. He was born at Cortlandville, New York, February 9, 1851, being the only son of John B. Lamont and Elizabeth Scott Lamont. His grandfather, Daniel Lamont, came to this country from Scotland in 1817, the seat of the clan, which is accounted one of the oldest and strongest in the Highlands, being at Port Bannatyne, in the Isle of Bute, where many members of the family still reside, the old homestead being still in their possession.

After finishing his academic course in the New York Central Academy at McGrawville, the future Secretary of War entered Union College, but left in his third year without being graduated. His public career commenced in 1871, when he was appointed Deputy Clerk in the New York Assembly, an office which he held for two terms, during which he made a number of very valuable acquaintances among the public men of the State. He was chosen a delegate to the Democratic State Convention at Rochester of 1871, from Cortland County, and, although only twenty years of age at the time, so impressed Governor Tilden with his ability and discretion that the latter took him into his confidence at once; and from that time until Mr. Tilden's retirement from the political arena in 1880, he and Secretary Lamont continued on terms of the closest intimacy.

In 1873, Secretary Lamont was the Democratic candidate for county clerk of Cortland County, which, although then Republican by fully sixteen hundred majority, gave him a vote that came very near electing him. This splendid showing led to his nomination for the Assembly in the following year, when, with the same conditions existing, he reduced the Republican majority by fourteen hundred. In 1875 he was chosen secretary of the Democratic State Committee, and visitors to the head-quarters of the Committee at the Everett House in that year will recall the quiet, self-possessed young man who knew everybody and everything, and who had already mastered the difficulty of meeting and answering the most tedious bores without sending them away angry or much wiser for the information he courteously but briefly imparted to them. His intimate knowledge of the politicians and party-workers throughout the State, together with his extraordinary faculty for dispatching business without fuss or apparent fatigue, were of

great value to him in this position, which he held for all except two years from the time of his first association with the Committee up to 1882.

When John Bigelow became Secretary of State in 1876, Secretary Lamont was appointed chief clerk of that Department; and it is needless to say that he left behind him a far better system of conducting the business of the office than he had found on entering it.

On January 1, 1878, Secretary Lamont entered the field of journalism as legislative reporter for the Albany *Argus*. He subsequently became one of the proprietors of that paper as well as its managing editor, in which capacity he served as a member of the Executive Committee of the New York Associated Press. He continued actively engaged in newspaper work until Mr. Cleveland's inauguration as Governor in 1882, when the latter appointed him military secretary, a position which carries with it the honorary designation of "Colonel," by which title the Secretary of War has been familiarly known ever since. He also served as private secretary to Mr. Cleveland, and in this capacity was the almost inseparable companion of the Governor, who repeatedly acknowledged the valuable services rendered by his assistant.

When Mr. Cleveland became President in 1885, Secretary Lamont accompanied him to the national capital in the same capacity. It is said that the President-elect on one occasion, when it was intimated to him that Secretary Lamont might not be able to go with him to Washington, declared, "Well, Dan, if you don't go, I won't go; and that's all there is about it." "Dan" went, as all the world knows, and soon established a new order of things at the White House, the business of the executive office being conducted in the same orderly and thorough manner that had characterized all Secretary Lamont's previous public work. As private secretary to the President, his ability, tact, and wide knowledge of men combined to make him the most popular incumbent of that difficult position that there has ever been. Towards the close of the Administration a law was passed by Congress, largely at the instance of the Republicans, increasing Secretary Lamont's salary from three thousand five hundred to five thousand dollars a year, and pending a vote on the measure in the House of Representatives, an amendment was incorporated in the bill making the law retroactive, which would have given him something like seven thousand dollars in extra pay; but he declined to receive it, saying that he had accepted the position with full knowledge of its salary, and that he preferred not to be the beneficiary of back-pay legislation.

After General Harrison's accession to power, Secretary Lamont was offered many valuable business connections in New York and elsewhere, the importance of which were a striking proof of the high esteem in which he is held by business-men. He preferred, however, to associate himself with ex-Secretary of the Navy William C. Whitney in the enterprises in which the latter was engaged, notably in the acquirement

and consolidation of the leading street railroads in New York City. As the salary of our Cabinet officers is only eight thousand dollars a year, it goes without saying that Mr. Lamont did not enter President Cleveland's second Cabinet without a considerable pecuniary sacrifice. That he would be chosen one of the President's constitutional advisers was a foregone conclusion, and when his appointment to the portfolio of War was announced, it was received with universal approbation. Even the Republican partisan press declared that there was no doubt about his ability to administer the War Department with eminent success, as, indeed, there would have been little doubt about his ability to occupy any other equally important post with credit and efficiency; for Mr. Lamont is a man of unusual executive talents, and in selecting him for the Secretaryship of War, President Cleveland displayed wise judgment in thus rewarding one whose past record was all that could be desired as a guarantee of future service.

During the year that he has been in office, Secretary Lamont has given entire satisfaction to every one in the administration of his great office, and his recent report shows that he is entirely conversant with the needs of our military service. He soon mastered the manifold duties of the Secretary of War, which include supervision of all the estimates or appropriations for the expenses of the Department as well as of all purchases of army supplies, and of all expenditures for the support and transportation of the army, and of such expenditures of a civil nature as are by law placed under his direction. The Secretary also has supervision of the United States Military Academy at West Point and of the national cemeteries, as well as of the publication of the Official Records of the War of the Rebellion and of the Board of Ordnance and Fortification. He has charge, too, of all matters relating to river and harbor improvements, including the prevention of obstruction to navigation and the establishment of harbor lines; and he approves the plans and location of bridges authorized by Congress to be constructed over the navigable waters of the United States.

Although he has less patronage to dispose of in his own Department than any other member of the Cabinet, with the exception, perhaps, of the Attorney-General, Secretary Lamont is more industriously pursued by office-seekers than any one else in Washington, owing, no doubt, to the fact that he stands so close to the President. Indeed, there is no one who more thoroughly enjoys Mr. Cleveland's confidence and esteem than Secretary Lamont, and certainly there is none who so well deserves it.

It is interesting to note that it was in Governor-elect Cleveland's lodgings "over a hardware store" at Buffalo, in the winter of 1882, that the intimacy began between the President and the Secretary of War, which has since ripened into a friendship as firm as that which existed between Damon and Pythias.

CHARLES ROBINSON.

ORIGIN AND DEVELOPMENTS OF STEAM NAVIGATION.

(Continued from page 260.)

In 1823 there were public rejoicings at Louisville, Kentucky, when a steamboat arrived there in fifteen days and six hours from New Orleans. The captain, answering a complimentary toast, gravely stated the upward passage might possibly be accomplished in fifteen days, or six hours less than the time he had just made. Within twenty years the passage was actually performed in a few hours over *four days!*

The oldest steamboat company in the United States or in the world in 1858 (and we believe it still exists) was the United States Mail Line between Cincinnati, Louisville, and St. Louis. It was organized in 1818, and kept improving and adding to its boats. This company built the first steamer designed *exclusively* for passengers. She was named the "General Pike," and made her trips between Louisville and Cincinnati in thirty-one hours,—a passage now made in nine hours.

In 1858 eighteen miles an hour was the maximum speed attained on Western waters. At that date eight hundred and sixteen steamboats were employed on the Mississippi and its tributaries, having a total tonnage of three hundred and twenty-six thousand four hundred and forty-three tons.

The traveler now on the Father of Waters is seldom if ever out of sight of the smoke or sound of a steamboat, and the boats have increased in size from seventy-five tons to between one and two thousand tons, with machinery powerful in proportion.

The following table shows the progressive improvement made in the speed of the boats from New Orleans to Louisville (distance fourteen hundred and eighty miles), 1815 to 1853:

Date.	Name of Steamer.	Days.	Hours.	Minutes.	Date.	Name of Steamer.	Days.	Hours.	Minutes.
May, 1815	Enterprise	25	2	40	April, 1840	Edward Shippen	5	14	00
April, 1817	Washington	25	00	00	April, 1842	Belle of the West	6	14	00
Sept., 1817	Shelby	20	4	20	April, 1843	Duke of Orleans	5	23	00
May, 1891	Paragon	18	10	00	April, 1844	Sultana	5	12	00
Nov., 1828	Tecumseh	8	4	00	May, 1849	Bostona	5	8	00
April, 1834	Tuscarora	7	16	00	June, 1851	Belle Key	4	23	00
Nov., 1837	General Brown	6	22	00	May, 1852	Reindeer	4	20	45
Nov., 1837	Randolph	6	22	00	May, 1852	Eclipse	4	18	00
Nov., 1837	Empress	6	17	00	May, 1853	A. L. Shotwell	4	10	20
Dec., 1837	Sultana	6	15	00	May, 1853	Eclipse	4	9	30

The last was the quickest time on record up to that date. Her average speed was fourteen miles an hour against the stream.

STEAMBOATS IN ENGLAND.

1812.—THE "COMET."—Stimulated, as he tells us, by the success of Mr. Fulton, with whom he was in correspondence,[1] Mr. Henry Bell, of Helensburgh, for many years a house carpenter in the city of Glasgow, Scotland, determined, in 1812, to try the power of steam on the Clyde, and produced the first trading steam-vessel in Europe.

Helensburgh is a watering-place on the river Clyde, and Mr. Bell, for several years preceding, had been the proprietor of a hotel and bathing-establishment there. It was to increase the facilities for reaching these baths that Mr. Bell first constructed his steamboat.

In those days there were no conveyances on the river except "fly-boats," pulled by four oars or using sails when practicable; with these the voyage was sometimes made in five or six hours, but often the time was longer and uncertain. After various experiments with paddle-wheels driven by hand in place of oars, Mr. Bell was convinced, by the experiments of Millar and Symington and the success of Fulton, that steam-power alone would effect his object. In consequence, after making several models of a steam-vessel, he succeeded in one suited to his ideas, and contracted with Messrs. John Wood & Co., ship-builders, in Port Glasgow, to build a steam-vessel after his model, to be forty feet on the keel and have ten feet six inches beam. She was called the "Comet," because she was built and finished the same year that a comet appeared in the northwest part of Scotland.

The "Comet" had two paddle-wheels, or rather two radiating sets of paddles, on each side, resembling very much in their appearance four malt shovels, radiating from a revolving axis to which they were all fixed. This was soon changed to Mr. Bell's complete wheel, which has been in use ever since. The engine known as the bell-crank, on Mr. Watt's principle, was put up under Mr. Bell's superintendence. The boiler was every way inferior to the boilers of Millar, Taylor, and Symington, inasmuch as the fire was on the outside of the boiler, separated from the wood of the vessel only by the bricks in which it was set, while in theirs, as in all steam-vessels of the present day, the fire was wholly within the boiler, and surrounded by water, so as to prevent danger from accident by fire or loss of heat. The boiler, which was fed by a cistern of fresh water, was on one side of the engine, the funnel being bent to the centre of the boat, where it served the pur-

[1] Mr. Bell, in a letter dated March 1, 1824, says, "When I wrote to the American government on the great utility that steam navigation would be to them on their rivers, they appointed Mr. Fulton to correspond with me; so in that way the Americans got their insight from your humble servant."—*Memoir by Patrick Millar, Jr.*

pose of a mast to carry sail. The early constructors of steamboats endeavored to disguise the odious funnel under the designation of a mainmast, and some went so far as to raise up a topmast in the thick folds of the dense, black smoke.

The "Comet" began to ply from Glasgow to Helensburgh in January, 1812, making a speed of about five miles an hour. She was of about twenty-five tons burden, and her engine exerted a force of about *three* horse-power. She continued during the summer to ply successfully as a passenger-boat.

The following is a copy of the original advertisement:

"STEAM PASSAGE BOAT. THE COMET. Between Glasgow, Greenock, and Helensburgh, for passengers only. The subscriber having, at much expense, fitted up a handsome vessel to ply upon the RIVER CLYDE BETWEEN GLASGOW AND GREENOCK, to sail by the power of wind, air, and steam, he intends that the vessel shall leave the Broomielaw on Tuesdays, Thursdays, and Saturdays, about midday, or at such hour thereafter as may answer from the state of the tide; and to leave Greenock on Mondays, Wednesdays, and Fridays, in the morning, to suit the tide.

"The terms are for the present fixed at 4*s.* for the best cabin and 3*s.* for the second; but, beyond these rates, nothing is to be allowed to servants or any other person employed about the vessel.

"The subscriber continues his establishment at HELENSBURGH BATHS the same as for years past, and a vessel will be in readiness to convey passengers in the Comet from Greenock to Helensburgh.

"Passengers by the Comet will receive information of the hours of sailing by applying at Mr. Housten's office, Broomielaw; or Mr. Thomas Blackney's, East Quay Head, Greenock.

"HENRY BELL.

"HELENSBURGH BATHS, Aug. 5, 1812."

The "Comet" was wrecked in 1825 in the Firth of Clyde on a return trip from the Western Highlands, and many of her passengers were drowned. Bell, her originator, became as great a wreck as his vessel, and the Clyde trustees, out of gratitude, settled on him an annuity of one hundred pounds, which he enjoyed until he died, in 1830. His widow died in 1856, aged eighty-six.[2]

1813.—THE "ELIZABETH."—The success of the "Comet" soon excited competition, and three months after she began to ply upon the Clyde, the keel of a rival was laid, and in March, 1813, the "Elizabeth," the second steamer on the Clyde, was started, and continued to ply successfully, eclipsing the "Comet" and bringing much profit to the owner. The "Elizabeth," says John Scott Russell, was probably

[2] *Notes and Queries*, vol. iv., second series.

the first *remunerating* steam-vessel in the world; but we think he is mistaken.

Mr. Bell had employed in his experiments on fly-boats an engineer named John Thomson, of Glasgow, who appears to have assisted in planning his first boat, and to have felt himself ill-treated by Bell in not being made a partner in that speculation. To avenge his wrong he got Mr. Wood, who built the "Comet," to build a vessel fifty-one feet keel, twelve feet beam, and five feet deep. The tonnage of this vessel was about thirty-three tons, and her power about ten horses. The correct proportion of power to tonnage seems to have been the secret of her success. The owner's description of this vessel is an interesting and characteristic memorial of early steam navigation, he says,—

"The 'Elizabeth' was started for passengers on the 9th of March, 1813, and has continued to run from Glasgow to Greenock daily, leaving Glasgow in the morning and returning the same evening. The passage, which is twenty-seven miles, has been made, with a hundred passengers on board, in something less than four hours, and in favorable circumstances in two and three-quarters. The 'Elizabeth' has sailed eighty-one miles in one day, at an average of *nine miles an hour*. The 'Elizabeth' measures aloft fifty-eight feet; the best cabin is twenty-one feet long, eleven feet three inches at amidships, and nine feet four inches aft, seated all round, and covered with handsome carpeting. A sofa, clothed with marone, is placed at one end of the cabin, and gives the whole a warm and cheerful appearance. There are twelve small windows, each finished with marone curtains with tassels, fringes, and velvet, cornices ornamented with gilt ornaments, having altogether a rich effect. Above the sofa there is a large mirror suspended, and on each side bookshelves are placed containing a collection of the best authors for the amusement and edification of those who may avail themselves of them during the passage; other amusements are likewise to be had on board.

"The engine stands amidships, and requires a considerable space in length and all the breadth of the vessel. The forecastle, which is rather small, is about eleven feet six inches by nine feet six inches, not quite so comfortable as the after one, but well calculated for a cold day, and by no means disagreeable on a warm; all the windows in both cabins are made in such a way as to shift up and down like those of a coach, admitting a very free circulation of fresh air. From the height of the roofs of both cabins, which are about seven feet four inches, they will be extremely pleasant and healthful in the summer months for those who may favor the boat in parties of pleasure.

"Already the public advantages of this mode of conveyance have been generally acknowledged; indeed, it may without exaggeration be said that the intercourse through the medium of steamboats between

Glasgow and Greenock has, comparatively speaking, brought those places ten or twelve miles nearer each other. In most cases the passages are made *in the same time as by the coaches;* and they have been, in numerous instances, done with greater rapidity. In comparing the comfortableness of these conveyances, the preference will be given decidedly to the steamboat. Besides all this, a great saving in point of expense is produced; the fare in the best cabin being only four shillings, and in the inferior one two shillings and sixpence, whereas the inside of a coach costs not less than twelve shillings and the outside eight shillings."

The "CLYDE," a third vessel, was built by Mr. Wood the same year for Mr. Robertson, an engineer of Port Glasgow, and commenced her trips in July. She was seventy feet on the keel, seventy-six feet long on deck, thirteen to fourteen feet beam, of fourteen horse-power, and sixty-nine tons measurement. Her speed was six miles an hour.

The "GLASGOW," a fourth vessel, was also launched by Mr. Wood in 1813, seventy-two feet long, fifteen feet beam, seventy-four tons measurement, and sixteen horse-power. Her engines were constructed by Mr. Cook, of Glasgow. She was intended to carry goods as well as passengers, and was moderately sharp, but afterwards improved by lengthening the bow five feet, and giving it greater sharpness. This vessel belonged to the first joint stock company for steam navigation ever established.

The "DUMBARTON CASTLE," eighty-one tons, one hundred and seven and a half feet long, sixteen feet ten inches broad, and eight feet eleven inches deep, having two engines of thirty-two horse-power, was built in 1815, and the following year accomplished the first trip to Rothesay, considered a feat, as the sailing-packets formerly on the station occupied one day, and occasionally three days, in making the passage. The succeeding year she made the passage through the Kyles of Bute, and up Lochfyne to Inverary, having left Glasgow at 6 A.M., and reaching Inverary about 10 P.M., a most remarkable occurrence.

The "BRITANNIA," of seventy-three tons, ninety-four feet four inches long, by sixteen feet five inches broad, and eight feet eight inches deep, having two engines of fourteen horse-power, was built in 1815, and some years thereafter made the trip to Campbeltown in about fourteen hours.

The "ROB ROY," fifty-six tons, eighty feet eleven inches long, fifteen feet eight inches broad, and eight feet deep, was built in 1818, and was the first steamer that plied to Belfast.

The "ROBERT BRUCE," of ninety tons, ninety-four feet long, eighteen feet seven inches broad, and eleven feet deep, was also built in 1818, and was the first steamer that proceeded to Liverpool as a regular trader from Glasgow.

In 1813 a steamer was launched at Manchester and another at Bris-

tol. October, 1814, the first steamer was in operation on the Humber, and in December the first steamer on the Thames was put in motion on the canal at Limehouse. June 28, 1815, a steamboat, built on the Clyde, arrived and was placed on the Mersey. On her passage she called at Ramsey, Isle of Man. She is notable as the first steamer which plied on the Mersey, and also as the pioneer of that noble fleet of steamers which ply with regularity between Liverpool and the numerous ports of the English, Irish, and Scotch coasts, also from being the first steamer to encounter the passage of these coasts.

About 1814 two vessels, "The Princess Charlotte" and the "Princess of Orange," were built and experimented with on the Clyde by a man named Miller, and proved unsuccessful. Watt & Bolton were the engineers.

THE "INDUSTRY."—The *seventh* steamer built on the Clyde was launched by William Fyle, May, 1814. She was of only fifty-four tons register. After an honorable career she lay a long time sunk in the East India harbor at Greenock, but November, 1872, was floated, beached, and calked, and in 1876 was presented by Messrs. Steele & Co., Catskill, her owners, to the Glasgow Chamber of Commerce, to be preserved as a memento of the early days of steam navigation, being beyond doubt the oldest steamboat in the world.

In 1815 ten steamboats were plying from the Clyde for the conveyance of passengers. The success of the steam-vessels at Glasgow soon excited attention elsewhere, and several Clyde-built vessels were purchased as models. A Mr. Lawrence, of Bristol, established a steamboat on the Severn, and having carried her to ply on the Thames, the Company of Watermen made such opposition he was obliged to take her back to Somersetshire.[3]

June 11, 1813.—Robert Fulton filed in the Patent-Office at Washington a petition for a patent, in which he asserted that he was the proprietor of two patents which contemplated the propelling of one single boat by the steam-engine, and that in this prosecution of his experiments on the navigation by steam on a large scale he had made discoveries and produced inventions extending to an incalculable degree the benefits of his original discovery and invention of the practical method of navigation by steam. These inventions he goes on to state consist principally in the combination and connection of several boats, constructed and connected in a manner so as to be propelled or drawn forward by one boat containing a steam-engine with the machinery necessary for the propelling of such steamboats. This invention consisting essentially in the separation of the steam-engine and of the boat containing the same from the boat or boats which carry the passengers and cargo, without, however, its being necessary to exclude from the boat carrying the steam-engine some part of the passengers and cargo.

[3] Buchanan's Practical Treatise on Propelling Vessels by Steam.

By which invention, the weight being distributed over a surface of water, which may be indefinitely increased, the draft of water necessary to carry the same may be indefinitely diminished, while at the same time all the inconveniences, expense, and liability to warp which attend one boat of very large dimensions and great length are avoided.

1814.—Early in 1814 there were five steamboats on the Thames River. 1. The "Thames" (originally the "Argyle"), fourteen horse-power, plying between London and Margate; reckoned the best boat. The paddles alternated with each other, and were set at an angle of forty-five degrees. 2. The "Regent," ten horse-power, paddles set square, with rims like an overshot wheel; expected to ply between Chatham and Sheerness. She was first built for the wheel to work in the middle; but this, not having been found to answer, was altered. 3. The "Defiance," twelve horse-power, to Margate, with double horizontal cylinder engine. 4. A boat which plied between London and Gravesend was laid aside on account of a lawsuit, as she was not worked by a privileged person. She was soon to start again, with a new twelve or fourteen horse-power Scotch engine, being originally fitted with a high-pressure engine. The wheels had rims, and the paddles swung like top butt-hinges. 5. A boat with double keel, six horse-power, was building above Westminster Bridge; paddles upright; said to be for London and Richmond. 6. Mr. Maudslay built a small boat in 1813 for Ipswich and Harwich, sixteen miles done in two and a quarter hours, but against a strong wind in three hours. This had six frying-pan paddles set square, without rims. "There are two steam-vessels on the River St. Lawrence, one forty-eight the other thirty-six horse-power, which go at seven miles an hour, measure about one hundred and seventy feet long and thirty feet wide! Another forty-eight horse-power vessel will be launched next year on that river. So that one may go by steam from Quebec to New York in eight days, with a short land carriage."[4]

In October, 1814, the first steamboat on the Humber was started to run between Hull and Gainsborough. She was called the "Caledonia," and accomplished, with a favorable tide, fourteen miles an hour. She made the voyage between the two ports, a distance of fifty miles, in eight hours.

The "Margary" was taken south in 1814, along the east coast of Scotland. When she reached the Thames she passed close along the English fleet at anchor. Her extraordinary apparition excited a commotion among officers and men; none of them had seen a steamer before; by some she was taken for a fire-ship. The nearest man-of-war hailed her, and on being answered that she was a steamer built at Dumbarton, on the Clyde, a seaman named John Richardson, from Dumbarton, who was alive in 1857, ran along the deck of the man-of-

[4] Buchanan's Treatise on Propelling Vessels.

war shouting, "Hurrah for Scotland! Dumbarton forever!" The "Margary" was fifty-six feet long and nineteen feet in breadth over all. On leaving for London she was taken through the Forth and Clyde Canal, and coasted up to London.[5]

The claims of the "Margary" conflict somewhat with those of the "Caledonia," but the "Margary" was launched June, 1814, according to Cleland's "Annals of Glasgow," published in 1816, and went to London November, 1814, while the same Annals say the "Caledonia" was not launched until April, 1815, and did not go to London until May, 1816. According to Cleland, twenty steam-vessels of various dimensions were built at Port Glasgow, Greenock, and Dumbarton, with engines of Glasgow make, during the four years 1812–16. Of these, the "Elizabeth," launched November, 1812, went to Liverpool in 1814; "Argyle," launched in June, 1814, went to London in 1815; "Margary," launched June, 1814, went to London November, 1814; "Caledonia," launched April, 1815, went to London May, 1816; "Greenock," launched May, 1815, went to Ireland, and then to London, May, 1816.[6]

A Margate hoy of large dimensions, propelled by steam, was, in 1815, run constantly from London to Margate, and, says a letter-writer, "from its novelty, and the certainty of its arrival within a given time (about twelve hours), it is much crowded with passengers." This was probably the "Margary."

Mr. Martin, the harbor-master of Ramsgate, who commanded a sailing-packet from Margate to Ramsgate, says that in June, 1815, on one of his trips, his companions pointed out to him an object some distance ahead, which they supposed to be a vessel on fire, but as they neared it, it was found to be the steamboat "Margary," *alias* "Thames."[7] With a fresh breeze he sailed round her easily, as her engine was of only fourteen horse-power, and her model a clumsy one. Nothing could exceed the ridicule his passengers bestowed upon the unseemly vessel; some compared her to a jaded horse with a huge pair of panniers, others to a smoke-jack. Yet this vessel had voyaged from Port Glasgow to Dublin, and from thence to London, and traversed fifteen hundred miles of sea, some part of it in tempestuous weather.

1815.—The *British Naval Chronicle* for July, 1815, says, "The 'Thames' steam-yacht is said lately to have accomplished a voyage of fifteen hundred miles. She twice crossed St. George's Channel and sailed round Land's End, and is the first *steam*-vessel that ever traversed these seas. The advantages of a vessel enabled to proceed either by sail or steam, or both united, must indeed be sufficiently obvious, and especially in the certainty of reaching its place of destination in a given time."

[5] Dumbarton *Herald;* also the Greenock *Advertiser*, May 12, 1857.

[6] London *Notes and Queries*, vol. v., second series.

[7] Another gives the name of the "Argyle" to the "Thames."

The Hampshire *Telegraph*, June, 1815, notices a steam-vessel which "suddenly made its appearance lately at Portsmouth, England, and, coming into the harbor immediately against the wind, produced a considerable degree of curiosity. She is a very neatly-fitted vessel, and goes through the water at the rate of seven or eight miles an hour, which is produced by the steam from an engine of fourteen horse-power. One ton of coal is sufficient fuel to produce the necessary force of steam for propelling her one hundred miles. She came from Plymouth Sound in twenty-three hours. It was intended, had the wind not been fair, that she should have towed the 'Endymion' frigate out of the harbor;" the "Endymion" being the vessel which was on the coast of the United States during the war of 1812–14, and had the credit of receiving the surrender of the United States frigate "President."

This notice undoubtedly refers to the "Argyle," launched on the Clyde, June, 1814, and renamed the "Thames," which is memorable from being the first steamboat to make an extended sea-voyage in British seas.

The "Argyle," or "Thames," was seventy tons register, seventy-nine feet long on the keel, had sixteen feet beam, and engines of fourteen horse-power. Her paddle-wheels were nine feet in diameter. She had two cabins,—one aft, the other forward of her engines. In her waist was the engine, the boiler on the starboard, the cylinder and fly-wheel on the port side. Her funnel did duty *as a mast*, and was rigged with a large square-sail. A gallery upon each side of the cabin formed a continuous deck. She had eighteen painted ports on each side, with two astern, which to a casual observer were very formidable. After plying a year between Glasgow and Greenock she was purchased by a London company, to be run between that city and Margate, and it became necessary to bring her by sea from the Clyde to the Thames.

There was then in London a man named Dodd, who had served in the navy, and had distinguished himself as an engineer and architect, but who finally, driven by misfortune to intemperance, almost literally died in the streets a beggar.

To this Dodd was intrusted the task of taking the "Argyle" from the Clyde to the Thames. He arrived in Glasgow April, 1815, with a crew consisting of a mate, an engineer, a stoker, four seamen, and a cabin-boy; and with these put boldly to sea in the "Argyle" about the middle of May, 1815. His voyage at first was far from auspicious. The weather was stormy, the sea ran high in the strait which separates Scotland from Ireland, and, through ignorance, negligence, or misunderstanding, the pilot during the night altered the course, and the vessel came near being wrecked. At break of day, a heavy gale blowing, it was discovered they were within half a mile of a rock-bound lee-shore, two miles north of Port Patrick. To beat off in the teeth of the gale by the united power of steam and sails Dodd found impossible. De-

pending, therefore, entirely on his engine, he laid the vessel's head directly to windward, and kept the log going. The vessel began slowly to clear the shore, about three knots an hour. Having acquired a sufficient offing, he bore away for Loch Ryan, gained the Irish coast, and May 24 entered the Liffey.[8]

A graphic and detailed account of her voyage, written by Mr. Weld, the secretary and historian of the Royal Society, who with his wife took passage on board at Dublin, can be found in *Chambers' Journal* for April 25, 1857.

Leaving the Liffey on Sunday noon, the 28th of May, 1815, many persons from curiosity crossed the bay in her and landed at Dunleary (now Kingstown), and the sea being rough, the passengers were violently sea-sick. Several naval officers on board declared it to be their firm opinion that the vessel could not live long in heavy seas, and that there would be much danger in venturing far from shore. At Dunleary all the passengers except Mr. Weld and his wife left the boat, and it is to their brave resolve to remain that such a complete account of this pioneer voyage around the British Islands has been preserved.

The voyagers soon left behind them all the vessels which had sailed from Dublin with the same tide, and the next morning, when off Wexford, the dense smoke which issued from the mast-chimney being observed from the heights over town, it was concluded the vessel was on fire, and all the pilots put off to her assistance. Putting in at several intermediate points, on the 6th of June the adventurers arrived at Plymouth. The harbor-master, who had never seen a steamboat, was as much struck with astonishment when he boarded the "Thames" as a child in the possession of a new plaything. The sailors ran in crowds to the sides of their vessels as she passed, and, mounting the rigging, gave vent to their observations in the most amusing manner.

On her arrival at Portsmouth thousands of spectators assembled to gaze upon her, and the number of boats that crowded around her was so great that it became necessary to request the port-admiral to assign the voyagers a guard to preserve order. A court-martial sitting on board the "Gladiator" adjourned its session to visit her, and on the 10th of June, Sir Edward Thornborough, the port-admiral, sent his band and a guard of marines on board, and soon after followed himself, accompanied by *three* admirals, *eighteen* post-captains, and a large number of ladies. The morning was spent very pleasantly in steaming among the fleet and running over to the Isle of Wight, the admiral and the naval officers expressing themselves delighted with the "Thames."

From Portsmouth the steamer proceeded to Margate, which was reached Sunday, July 11, 1815. The next day she arrived at Lime-

[8] *Morning Chronicle*, June 15, 1815.

house, and was moored. They passed everything on the Thames,—all the fast-sailing Gravesend boats, pleasure-boats, West Indiamen, etc.

The whole distance sailed from Dublin to Limehouse was seven hundred and fifty-eight nautical miles, which were accomplished in one hundred and twenty-one and a half hours, with an expenditure of one ton of coal for every one hundred miles.

Sir Rowland Hill, the Post-Office Reformer, whose life has recently been published, makes a note as to the commencement of steam traffic at Margate. He was there in the year 1815, with his brother, Matthew Davenport Hill. On the 3d of July they "went to see the steamboat come in from London, generally performing the voyage in about twelve hours." "It is surprising to see," says Sir Rowland, "how most people are prejudiced against this packet. Some say that it cannot sail against the wind, if it is high; but when it entered the harbor (at Margate), the wind and tide were both against it, and the former rather rough; yet I saw it stem them both. There was a great crowd, and much enthusiasm, though carpers predicted failure, and sneered at 'smoke-jacks.'"[9]

1815.—Richard Trevithick obtained a patent in England for "a screw-propeller, consisting of a worm or screw, on a number of leaves placed obliquely around an axis, which revolves in a cylinder, fixed or revolving, or without a cylinder, at the head, sides, or stern of a vessel. In some cases the screw is made buoyant and works on a universal joint." In a second specification he adds, "A stuffing-box, inclosing a ring of water," also "a boiler of a number of small perpendicular tubes,—each tube closed at the bottom, but all opening at the top with a common reservoir." This was the first English patent for a screw-propeller. It never was, however, made the subject of a practical experiment.

EMPLOYMENT OF STEAMERS IN THE WAR OF 1812–14.—The *Gentleman's Magazine*, April, 1814, in an article on "Steam-Engine Passage-Boats," says, "For the information of those who are unacquainted with the fact, it may be necessary to state that the principal rivers of North America are navigated by steamboats; one of them passed two thousand miles on the great river Mississippi in twenty-one days at the rate of five miles an hour against the descending current, which is perpetually running down. This steamboat is one hundred and twenty-five feet in length, and carries four hundred and sixty tons at a very shallow draught of water,—only two feet six inches,—and conveys whole ships' cargoes into the interior of the country, as well as passengers.

"The city of New York alone possesses *seven* steamboats for commerce and passengers. To name only one or two of them, that from thence to Albany, on the North River, passes one hundred and thirty

[9] New Castle *Weekly Chronicle*, August 21, 1881.

miles; then (after about forty-five miles of land-carriage to Lake Champlain) you enter another steamboat that will take you about two hundred miles to near Montreal, between which place and Quebec a British steamboat one hundred and forty feet in length[10] is constantly passing, and usually goes down in twenty-eight hours, but sometimes in only twenty-four, although the distance is one hundred and eighty miles, and returning she is seldom more than twelve or fifteen hours additional time, though the stream is almost constantly running against her with the great velocity so peculiar to the river St. Lawrence of North America. This boat in the last year was found of the greatest service to the British government in carrying troops and stores with greater ease and dispatch than can possibly be effected by land; and it is here worthy of remark that in the late expedition of Admiral Sir John Borlase Warren up the Potomac River, chasing the enemy, they, keeping their ships at a prudent distance from ours, *sent one of their steamboats* directly against the wind, so as to be just without gun-shot, and reconnoitred our fleet. This fact is mentioned *because it is presumed that it is the first instance where they have been applied to such purposes.*

"The steamboats used at present in our own island are a sufficient demonstration of their utility; it will be only necessary to mention those working on the river Braydon between Yarmouth and Norwich, and on the river Clyde between Glasgow and Greenock; which boats on this latter station often beat the mail between the two places, and are always certain to time, let the wind and tide be what they may.

"It would occupy too considerable a space in this paper to enter into the merits of those steamboats now building and preparing on the rivers Tyne, Thames, and Medway, particularly those with patent and simplified apparatus for the use of rivers, to pass coastwise, and for short runs of passages to the Continent; but it is necessary to state, from most mature and deliberate examination, that some of these steamboats with patent apparatus are so constructed that they can carry sail, and perform all the manœuvres of other vessels at sea, when the wind is in their favor, and when against them by furling their sails pass right in the wind's eye with velocity, thus continuing their passages in a straight line, while other vessels are obliged to tack to and fro."

It is interesting to note, as a measure of the steamboat's speed during the war of 1812–14, the captions of the newspaper articles of that day. Here is one:

"By the arrival of the fast sailing '*Car of Neptune*' in twenty-four hours from Albany, we have news from the army under General Scott to a very late date."

At that time the price of passage from Albany to New York was ten dollars.

[10] The "Swiftsure." See *ante*.

THE FIRST WAR STEAMBOAT.

1814.—Near the close of the year 1813, Robert Fulton exhibited to the President of the United States the drawing of a proposed war steamer or floating battery, named by him the "Demologos."

He contemplated, in addition to the proposed armament on deck, she should be furnished with four submarine guns, two suspended at each bow, to discharge a hundred-pound ball into an enemy ten or twelve feet below her water-line, and that she should have an engine for throwing an immense column of hot water upon the decks or through the ports of an opponent. Her estimated cost was three hundred and twenty thousand dollars, which was about the cost of a first-class sailing-frigate.

Fulton's project was favorably received, and in March, 1814, a law authorized the President to cause to be equipped "one or more floating batteries for the defense of the waters of the United States."

The construction of the vessel was committed by the "Coast and Harbor Defense Association" to a sub-committee of five gentlemen, appointed by William Jones, Secretary of the Navy.

Robert Fulton, whose soul animated the enterprise, was appointed the engineer, and on the 20th of June, 1814, the *keels* of this novel steamer were laid at the ship-yard of Adam & Noah Brown, in the city of New York. The blockade of our coast by the enemy enhanced the price of timber, and rendered the importation of copper, lead, and iron, and the supply of coal from Richmond and Liverpool difficult; these obstacles were, however, surmounted, and the enemy's blockade only increased the expense of her construction. With respect to mechanics and laborers there was also difficulty; shipwrights had repaired to the lakes in such numbers that comparatively but few were left on the sea-board; besides, a large number had enlisted as soldiers. By an increase of wages, however, a sufficient number of laborers were obtained; and the vessel was launched on the 29th of October, 1814, amid the hurrahs of assembled thousands.

The river and bay were filled with steamers and vessels of war in compliment of the occasion. In the midst of these was the floating mass of the "Demologos," or "Fulton," as she was afterwards named, whose bulk and unwieldy form seemed to render her as unfit for motion as the land batteries which were saluting her.[11]

Captain David Porter, writing the Secretary of the Navy under date New York, October 18, 1814, says, "I have the pleasure to inform

[11] I have seen a large copper-plate engraving of the launch of the "Fulton." It is entitled "Launch of the Steam-Frigate 'Fulton the First,' at New York, Oct. 29, 1814; one hundred and fifty feet long, fifty-seven feet wide, mounting thirty long 32-pounders and two 100-pounders (columbiads). Philadelphia: Published March 27, 1815, by B. Tanner, 74 South Street. Drawn by I. I. Baralet, from a sketch by Morgan, taken on the spot."

you that the 'Fulton the First' was this morning safely launched. No one has yet ventured to suggest any improvement that could be made in the vessel, and, *to use the words of the projector, 'I would not alter her if it were in my power to do so.'*

"She promises fair to meet our most sanguine expectations, and I do not despair in being able to navigate in her from one extreme of the coast to the other. Her buoyancy astonishes every one. She now draws only eight feet three inches of water, and her draught will be *ten* feet with all her guns, machinery, stores, and crew on board. The ease with which she can now be towed by a single steamboat renders it certain that her velocity will be sufficiently great to answer every purpose, and the manner it is intended to secure her machinery from the gunners' shot leaves no apprehension for its safety. I shall use every exertion to prepare her for immediate service. Her guns will soon be mounted, and I am assured by Mr. Fulton that her machinery will be in operation in about six weeks."

On the 21st of November, 1814, the "Fulton" was moved from the wharf of Messrs. Brown, on the East River, to the works of Robert Fulton, on the North River, to receive her machinery. The steamboat "Car of Neptune" made fast to her port and the "Fulton" to her starboard side, towed her to her destination at the rate of three and a half to four miles per hour.[12]

The dimensions of this, the *first war steamer*, were: Length, 150 feet; breadth, 56 feet; depth, 20 feet; water-wheel, 16 feet diameter; length of bucket, 14 feet; dip, 4 feet; engine, 48-inch cylinder, 5-feet stroke; boiler, length 22 feet, breadth 12 feet, and depth 8 feet. Tonnage, 2475. She was the largest steamer by many hundreds of tons that had been built at the date of her launch.

The commissioners appointed to examine her in their report say,—

"She is a structure resting upon two boats, keels separated from end to end by a canal fifteen feet wide and sixty-six feet long. One boat contains the caldrons of copper to prepare her steam. The vast cylinder of iron, with its piston, levers, and wheels, occupies a part of its fellow; the great water-wheel revolves in the space between them; the main or gun-deck supporting her armament is protected by a bulwark *four feet ten inches thick, of solid timber*. This is pierced by thirty port-holes, to enable as many 32-pounders to fire red-hot balls; her upper or spar-deck, upon which several thousand men might parade, is encompassed by a bulwark which affords safe quarters. She is rigged with two short masts, each of which supports a large lateen yard and sails. She has two bowsprits and jibs and four rudders, two at each

[12] "Rees's Encyclopedia" states she was towed on this occasion by the "Paragon," of three hundred and thirty-one tons burden, at the rate of four miles an hour. That she was towed by "Car of Neptune" and "Fulton" is, I believe, correct.

extremity of the boat; so that she can be steered with either end foremost. Her machinery is calculated for the addition of an engine which will discharge an immense column of water, which it is intended to throw upon the decks and all through the ports of an enemy. If, in addition to all this, we suppose her to be furnished, according to Mr. Fulton's intention, with 100-pounder columbiads, two suspended from each bow, so as to discharge a ball of that size into an enemy's ship ten or twelve feet below the water-line, it must be allowed that she has the appearance at least of being the most formidable engine of warfare that human ingenuity has contrived."

Such is a correct description of this sea-monster of 1814, but exaggerated and fabulous accounts of her got into circulation. Among others, the following was published in a Scotch newspaper, the writer stating that "he had taken great care to procure full and accurate information."[13]

"Her length," he writes, "on deck is *three hundred feet;* thickness of sides, *thirteen feet,* of alternate oak plank and cork-wood; carries 44 guns, four of which are 100-pounders; and further to annoy an enemy attempting to board can discharge one hundred gallons of boiling water in a minute, and by mechanism brandishes *three hundred cutlasses* with the utmost regularity over the gunwales; works also an equal number of heavy iron pikes of great length, darting them from her sides with prodigious force, and withdrawing them every quarter of a minute."

The stores of artillery at New York not furnishing the number and kind of cannon she was to carry, guns were transported from Philadelphia, a prize having placed some excellent pieces at the disposal of the Navy Department. To avoid the danger of their capture, twenty of these guns were sent over the miry roads of New Jersey dragged by horses.

In consequence of the exhaustion of the treasury and temporary depression of the public credit, the commissioners were instructed to pay the bills for the "Fulton" in treasury notes, but solely at par. These notes were often so long withheld that those who had advanced materials and labor were importunate for payment, and the commissioners had frequently to pledge their private credit. Once the men discontinued work. From these causes her completion was retarded until winter, and also by the unexpected death of Mr. Fulton, on the 24th of February, 1815.

All difficulties at length being surmounted, the machinery was put in motion, and she made her first trial trip on the 1st of June, 1815, only nine months after her keels were laid. On this trial she was found capable of opposing the wind, of stemming the tide, of crossing

[13] Stuart's "War and Mail Steamers" has accurate drawings of the "Fulton" from the originals.

currents, and of being steered among vessels riding at anchor, though the weather was boisterous and the water rough. Her performance demonstrated the success of Fulton's idea, and that a floating battery composed of heavy artillery could be moved by steam.

She left the wharf near the Brooklyn ferry, propelled by steam alone, against a stiff south breeze (which was directly ahead) and a strong ebb-tide, and steamed by the forts, saluting them with her guns, her speed equaling the most sanguine expectations.

After circumnavigating the bay and receiving a visit from the officers of a French ship-of-war, she came to anchor at Powles' Hook ferry about 2 P.M., nothing occurring to mar the pleasure or success of the trip. It was discovered, however, that alterations were necessary, some errors to be corrected, and some defects to be supplied, before she was prepared for a second trial.

On the 4th of July, 1815, she again made a trip to the ocean, eastward of Sandy Hook, and back again, a distance of fifty-three miles, in eight hours and twenty minutes, without the aid of sails, the wind and tide being partly favorable and partly against her, the balance rather in her favor. The gentlemen who witnessed this experiment without exception entertained no doubt as to her fitness for the intended purpose. Expedients were sought to increase her power, and devised and executed for quickening and directing her movements.

A third trial of her powers was attempted, on the 11th of September, with twenty-six of her long and ponderous guns and a considerable quantity of ammunition and stores on board. Her draught of water was less than eleven feet. She changed her course by reversing the motion of her wheels, without the necessity of putting about, like the ferry-boats of the present day. She saluted as she passed the forts, overcame the resistance of the wind and tide in her progress down the bay, and performed beautiful manœuvres around the United States ship "Java," then at anchor near the light-house. She moved with remarkable celerity, and was perfectly obedient to her double helm. The explosion of powder produced very little concussion on board, and her machinery was not affected by it in the slightest degree. Her progress during the firing was steady and uninterrupted. On the most accurate calculation, her velocity was four and a half miles an hour, and she made headway at the rate of two miles an hour against the ebb of the East River, running three and a half knots. The day's exercise was satisfactory to the company on board beyond their most sanguine expectation, and it was universally conceded that the United States possessed a new auxiliary against every maritime invader. The city of New York was considered as having the means of making itself invulnerable, and that every bay and harbor of the nation might be protected by the same tremendous power. Her performance more than equaled Fulton's expectations, and it exceeded what he had prom-

ised the government,—that she should be propelled by steam at the rate of from three to four miles an hour.

The commissioners who superintended her construction congratulated the government and the nation on the event of this noble project, and said, "Honorable alike to its author and its patrons, it constitutes an era in warfare and the arts. The arrival of peace indeed has disappointed the expectations of conducting her to battle. That best and conclusive act of showing her superiority in combat has not been in the power of the commissioners to make.

"If a continuance of tranquillity should be our lot, and this steam-vessel of war be not required for the public defense, the nation may rejoice in the fact we have ascertained as of incalculably greater value than the expenditures, and that if the present structure should perish, we have the information, never to perish, how, in any future emergency, others may be built. The requisite variation will be directed by circumstances."

The war having terminated, "Fulton the First," after these trial trips, was taken to the navy-yard at Brooklyn and moored on the flats abreast of that station, where she was used as a receiving-ship until the 4th of June, 1829, fifteen years after the laying of her keels, when she was accidentally or purposely blown up.

Commodore Chauncey, reporting this catastrophe, says that he had been on board of her all the morning inspecting the ship and men, particularly the invalids, who had increased considerably from other ships, and whom he had intended asking the Department's permission to discharge, as of little use to the service. He had left the ship but a few moments before the explosion took place. The report did not appear to him louder than a 32-pounder, although the destruction of the ship was complete and entire, owing to her very decayed state. There was on board at the time no more than *two and a half barrels of damaged powder*, kept in the magazine, for the morning and evening gun. By this explosion, however, twenty-four men and a woman were killed, nineteen wounded, and five reported as missing and probably killed. Among the killed was Lieutenant S. M. Breckinbridge, and among the wounded Lieutenant C. F. Platt, who died a captain in the navy, Lieutenant A. M. Mull, and Sailing-Master Clough; Lieutenant Platt was dangerously, the others severely, wounded. Four midshipmen were among the wounded.

Commodore Chauncey was of opinion that "the explosion could not have taken place from accident, as the magazine was as well or better secured than the magazines of most of our ships; yet it is difficult to assign a motive to those in the magazine for so horrible an act as voluntarily to destroy themselves and those on board, yet if the explosion was not the effect of design, I am at a loss to account for the catastrophe."

Master Commandant John T. Newton,[14] her commander, was on shore at the time of the explosion. Such was the beginning, end, and uneventful history of the first steam-vessel of war ever put afloat,—the pioneer, and to an extent the model also, of the floating batteries, double-hulled vessels, and "double-enders" which have succeeded her.

Captain E. C. Bowery, U.S.N., a surviving officer of the "Fulton," writing me under date December 13, 1881, says, "I say the destruction of the 'Fulton' was by carelessness. I believe in Divine Providence, but not in accident. I joined her in the early part of 1826 as an acting midshipman, Commander Budd then having command. Her magazine (if it could be called one) was nearly under the ship's coppers, and separated only by a light bulkhead was the 'bag-room,' in which the sergeant of marines had a writing-desk, on which was a naked oil lamp. Soon after reporting, I had occasion to go down there; the bulk-head had a sliding door, which was open, and his lamp shone on the kegs of powder, one of which was without a head. I remarked to the sergeant, 'If your light was only five feet nearer (all the space that separated it from the powder) there would be trouble.' 'Yis,' said he, turning his beery eyes on me, 'there would be a sensation.' After that I never turned in at night without thinking there might be a sensation before cock-crowing, and to this day I have not forgot the appearance of that powder with the light shining on it, and draw the inference that gross carelessness caused the sensation. Yet at the time there was a story that a gunner's mate had been disrated and punished with the cats the morning before the blowing up of the 'Fulton.'"

[14] Captain Newton also commanded the "Missouri" when she was burned in Gibraltar Bay, 1844.

GEORGE H. PREBLE,
Rear-Admiral U.S.N.

(To be continued.)

A SUMMER AMONG THE SEALS.

(Continued from page 237.)

CHAPTER III.

THERE are in round number ten rookeries on the island of St. Paul, having, according to the estimate of Mr. Elliott, sufficient area to accommodate over three million seals in the breeding season. Of these, the great rookery of Navastoshnah, on Northeast Point, is the largest in the world, having alone a breeding capacity for twelve hundred thousand bulls, cows, and pups. A rookery is momentarily adjustable, so to speak, to the requirements of its occupants,—following around the rocky shore, close to the water, if the number of animals is small, or extending several hundred yards up the hill-sides, if the attendance increases. Its character also changes materially during the year according to season. In the spring, before the arrival of the females, it is a lively battle-ground for the bulls, who proceed their respective families by a month or six weeks for the purpose of pre-empting a suitable lodging for the summer on the rocks. It is a good deal on the same plan that a man goes ahead of his family, looks up board at a farm-house if he be poor, or secures a high-priced cottage or suite of apartments if he is better stocked with the goods of this world. I do not wish to convey the impression that the bull seal takes an affectionate leave of his family somewhere in the south, promising to shove on, fix the accommodation question for the summer, and then send for his wife and the chicks. On the contrary, he probably does not have an idea, if a bull seal can have ideas, of the size and equipment of the summer establishment, what females it will contain, or when he can say that housekeeping has regularly begun. He is the gayest of all gay Lotharios; the sweet ties of the spring are severed in the fall; the obligations of the past are wiped from the slate, and he always looks forward to an unencumbered next season with its delightful possibilities as to the size of his household and the tempers, charms, feminine idiosyncrasies, and inconsistencies of its members. But let no one think his bed a rose-strewn couch. It is hard, uncompromising rock every time.

From the time the bulls first appear off the island, crawl out of the water, and take up holdings, until the females have all arrived and are

parceled out among them, the black rocks of a rookery constitute one of the noisiest, liveliest, and bloodiest battle-fields it is possible to imagine. A bull seal, from the first, sees only active, unscrupulous enemies on all sides, and hostile proceedings are inaugurated when he scrambles out of the water and begins snapping at every living thing within reaching distance. Then he goes house-hunting in the immediate vicinity, and if experienced, selects a rocky cove sloping gently down to the sea, and affording an easy, accessible landing-place for the females he may entice ashore later by pointing out its advantages. It may be a long wait before the family arrives, but every minute of it is full of business, and things are never dull. Probably no other animal has so many difficulties to contend with before housekeeping is started on a permanent basis. Take this first fellow. Scarcely is he firmly planted on his haunches and fore flippers to resist aggression before some old hand paddles up, eyes the spot, sees the good points of the location in a jiffy, and proceeds to oust him. He is simply a squatter with no rights; and, according to seal ethics, that patch of rock can only belong to the bull with the ability to take it and hold it against all-comers. So the one in temporary possession and the fellow anxious to perfect his title stop within six feet of each other, slew around a bit, and then clear for action by sounding a challenge apiece that starts as a guttural chuckle and speedily swells into an able-bodied roar that jars the atmosphere. After watching its effects on the other fellow, each one stops fooling, squares off after the most approved pugilistic fashion, eyes the enemy warily, and the big lumbering bodies, at other times so unwieldy on the rocks, suddenly get way on and circle about with considerable agility. The management of the neck and shoulders is always singularly powerful and easy, and when the head sways proudly from side to side, and then comes forward, serpent-like, with a lightning dart, it looks bad for the possible target. Perhaps the other fellow dodges, or the gleaming ivory batteries crash together in mid-air; perhaps the more expert fixes his teeth in the neck or shoulder of his adversary, then one mighty heave and a strip of bloody fur and flesh comes away. Again so. An eye goes this time, or possibly an ear, and so on until one party is half dead, beaten out, and convinced at last that some other patch of rock will do him just as well. The victor stands his ground, possibly whipped by the next comer, seldom in possession of the contested territory at the end of a month. It will probably be the bone of contention, the scene of pitched battles day and night, the price of fifty encounters before the final owner settles down for good, lacerated and bloody, wounds festering, fur and flesh gone, or hanging in red, raw strips, eyes gouged out perhaps; but all the same, with his nose proudly in the air, triumphant to the last, and ready to do battle with fifty more poaching bulls if necessary. The vanquished ones crawl off, rest awhile, think over their mistakes in tactics, and then

try to whip some less formidable bull out of his holding. After twenty or thirty such encounters a fellow gets a place corresponding exactly to his ability as a fighter. If old and feeble, he is gradually whipped from place to place up the rocks until he reaches the line beyond which no female goes, and looking around, finds himself among his equals, fellows who have failed in the struggle for position, just like people, and must henceforth take a back seat in the ranks of the unsuccessful.

Now picture a mile of basaltic cliffs and jumbled, igneous rock, turning and twisting in a broad, black ribbon along the white foam-line of the sea; imagine thousands of these four- to six-hundred-pound bulls lessening in the distance and engaged in just such battles as I have described, all at the same time; fill the air with hoarse chuckles, deafening roars, assorted animal cries, and yells of pain or distress,—a vast, full, swelling sound that can be heard for many miles; project it all against a leaden sky or fog-bank, and you have a rookery late in May or early in June.

By the middle of June the condition of affairs changes slightly. After a month's hard fighting, holdings are distributed according to the law of the strongest; things have quieted down, and one might suppose that the victors would be in a position to enjoy the fruits of this long period of waiting, fasting, and war. But when the females appear off the island, generally within a few days of each other, about the middle of June, the temporary lull is broken, pandemonium reigns again, and it seems as if all the evil passions of the sealine world were in a state of eruption. Bulls that have vindicated their powers and are stationed near the water wade in and try to coax or drag the females out of the surf,—a maddening sight to others up the rocks. These are apt to think—if bulls can think—that they haven't had a fair show; that the fellows down there did not put up a square fight; that things might be different if they had one more chance. But if one of them moves down into his enemy's territory, the fellow he whipped out yesterday, now just above him, will probably paddle on to his rock and refuse to give it up, if the fortunes of war should put him in a position to need it again, so he quietly goes to the lower boundary of his future haven and watches the progress of events.

One cannot help pitying the poor little females, delicate, lovely creatures, not over three feet long, and weighing perhaps seventy pounds, while the big, fierce brutes on shore cover six or seven feet of rock and tip the scales at five hundred. Moreover, the latter are trained fighters; and a female suddenly finding herself contested by two such monsters must quietly await the issue of the combat, with no more control over the progress of affairs, or her ultimate disposition, than a timid mouse would have between two belligerent tomcats, or the widow or the orphan between two unscrupulous capitalists. So this

victim of circumstances and the bull seal swims about in the breakers, does not land until compelled to,—possibly tries to enhance her value and insure good treatment by the usual feminine arts. But apparently she is deaf to the pressing invitations to come ashore rained upon her by a clump of twenty hard-looking pirates on the rocks. One acquainted with the sealine tongue might hear such inducements held out as, "Now paddle this way, please!" "Here you are for a nice, roomy camp, dry rock, and all the comforts of a home!" "Good treatment guaranteed!" "Fishing privileges allowed whenever the weather is dry!" "Come here, my beauty,—you with the drab countenance! No other wives need apply!" etc., etc. The same old antenuptial promises in the rough, with about the same chances of future fulfillment.

But the older and more experienced females do not believe a word of it. They have heard it all before, and after several harrowing experiences on the rocks are inclined to be skeptical. If there were a desolate, uninhabited rock anywhere, unknown to the ubiquitous bull seal, they would cheerfully hunt it up and have it out with Nature alone and unmolested. But there is not. Also, at the bottom of each foolish female heart there is apt to be a sneaking hope that, although her friends may be taken in again, she has made a genuine, lasting conquest this time. Led away by this fond delusion and by the prospect of a future that at the moment seems bright enough to illuminate even the shadowy past, she gradually edges in shore, and picks out the Turk who, having struck her fancy, appears less like a wife-beater and general hard character than his fellows. He promptly wades in and makes the usual protestations of undying affection as he lifts her tenderly out of the water and boosts her over the hard places. But no sooner is she dropped like a wet kitten in the middle of his patch of rock than it begins to look bad for the future. Instead of staying right there to reassure and protect the one he has promised to love and cherish, the smooth-tongued villain turns his whole attention to the next female, offers her the same inducement he held out to number one, makes the same old stereotyped speeches in the same old fervid, impressive way, is believed as before, and helps *her* out of the water. Two for the harem. But hold on! Meanwhile, his neighbor up the hill, whom he yesterday knocked into his present quarters in two rounds, quietly shuffles down, picks up number one by the back of the neck, much as a dog does a rat, tosses her lightly behind him, and while appearing to be very much interested in the scenery, really girds up his loins, rubs up his battle tactics, and prepares for war. Of course there is a row. No self-respecting bridegroom would stand this kind of thing. Each contestant is, however, heavily handicapped, watching his antagonist to escape annihilation, and at the same time having to keep a weather eye on his prize and all the thieving neighbors about. Probably both will get interested and lose their heads and tempers. This is fatal. When

the little mill is over, and each one turns to brag about his fighting qualities to the little one behind, she is gone,—scooped out of his territory by another brute. These two females may pass up the rocks in this way until they each become the property of some wise old fellow who keeps his temper, and only fights just long enough and hard enough to insure his belongings.

Now imagine the two or three thousand bulls previously mentioned busy at the same time dishonestly acquiring females in this manner, until the number of wives varies from one to fifty per bull, every living, breathing thing on the rocks galloping about on a dead yelp, fighting and struggling to settle down and get to rights for the season, and you have a rookery late in June and early in July. I say "settle down." It by no means follows that when a bull, after many vicissitudes and the expenditure of considerable blood and fur, has accumulated forty or fifty partners his proprietorship over them is in any way more respected than it was when he first waded into the sea and dragged out the nucleus of his future home. On the contrary, wife-stealing goes right along, day and night, until October; as long, in fact, as the females can be persuaded to stay around and be squabbled over.

CHAPTER IV.

It was on an exceptionally fine day in June, the fog being thinner than usual, that several of us left the ship, went ashore on St. Paul, and made intimate acquaintance for the first time with a rookery. There were five in the party, all green. Probably not one of us will ever entirely live down that first impression. It was a brand-new experience, and worth considerable on that account alone in these humdrum times.

We were in the second lot to go on shore. The pioneers, upon their return to the ship, had given us a glowing account of their expedition. What they hadn't seen they thought they had, and it amounted to the same thing in the recital. This is a standing peculiarity of travelers who are also readers. Anyway, these experiences at first hand from people supposedly truthful until proved otherwise brought the seal so close to us that it was with a new interest we filed on deck and watched her sport in the water alongside. Then glasses were produced, and a small colony of "bachelors" on the beach abreast of the ship attentively studied by those who hadn't been on shore. The others said that wasn't much of a rookery, anyway. However, it was to us, and we were much interested in the curious, dog-like animals flopping about the rocks, cursing and swearing in tones that came plainly off to the ship. But it was too far to make out what was said. Just then something happened. A man appeared suddenly on

the brow of the hill. The animal nearest him, a sort of sentinel on post, sounded the alarm. All stopped fighting, knocked off profanity, and crowded towards a centre, with noses in the air, ready for fight. The man approached. Then one started; the movement went through the herd with a sort of shiver, and there was a wild rush for the sea. Down they came, helter-skelter, pell-mell, tumbling over the rocks and each other, a living stream of kicking, squirming bodies, waving flippers, and ear-splitting yelps, and literally piled into the sea. The motion, somehow, was strangely familiar. Several of us were wondering where we had ever seen anything like it, when an old salt near by, without hitching his trousers, scraping his foot, or tugging his forelock, observed generally, "Them fellers moseys down jes' 's though they heerd mess gear piped." Any one who has ever seen blue-jackets stream for'd and tumble down a hatchway, as the boatswain's pipe announced that the mid-day meal awaited their onslaught, will appreciate the comparison.

When we left the ship the next morning, there was not a note-book, sketching pad, pencil, or kodak in the party. Naval men get so in the habit of rushing about the world, seeing things, that they soon give up as hopeless such time-consuming, artificial aids, and consequently impressions are seldom more than loosely fixed in the mind. This is convenient for the time being, having them easily detachable and always ready for use; but they do jostle about a good bit to the rolling of a ship, and when wanted, later on, are often battered and unserviceable.

Our expedition went smoothly enough at first, as a marine guard of young seals turned out, escorted the boat to the beach, watched it carefully all the way, and appeared much relieved when we were safely landed. Then we had to depend upon ourselves; tumbled and scrambled over the boulders and big, round pebbles, found the road, advanced gallantly on the "killing ground," and, after a hard struggle with the air thereabouts, carried the position and debouched on the town, above and close at hand. Several natives turned out to witness the assault, but their number by no means corresponded to the size of the settlement or the desperate nature of the undertaking. The remainder of the population were asleep in-doors most probably, or toasting over small stoves in full blast. Outside one shanty was an object that came with a shock to most of us,—left there by some young woman who had seen us first and did not wish a nearer inspection. Right on the ground, in the midst of mean, squalid surroundings, was a nice, bright, decently battered samovar in full operation, for the steam was issuing from it as we passed. It took us straight back to the afternoon crush at home, and the carefully darkened and then artistically lighted drawing-rooms, and the samovar hissing away in the recess, and the incompetent young woman who had lost the combination and couldn't make it work, and

the opportunity thus kindly afforded us to be chief engineer and show off, and the wild scramble for hot fluid and cake, and the way we assisted four tired young men to supply nineteen beautiful, thirsty, helpless, tailor-made girls with the same, and the way they all talked at once and could be heard on the sidewalk, and the fellow that took our new hat, and the hunt for the goloshes, and the blind, dizzy feeling when She appeared, and how, in our perturbation, we almost put her in the gutter instead of into the carriage, and her murmured thanks, and—and—it never does to become too retrospective in public.

Any city belle would have gloried in the possession of that neglected samovar hissing away out there in Bering Sea. A genuine, sure-enough samovar in fair preservation,—one she could vouch for to her friends; not a flimsy, bogus thing made in some Connecticut factory, dinted and battered just enough to suggest a particularly long, hard trip from Siberia, and then sold for a fabulous price. Each visitor to this region is commissioned to bring back, on an average, four samovars. I would suggest to those intending to make the trip to keep the fact a dead secret until the last moment, and then escape in the night. There is no better way to build up a reputation for non-fulfillment of engagements than by promising samovars to promiscuous young women. The supply is giving out here. All that remain are in constant use. As these people drink tea all day and far into the night, to sell the family urn would be to deprive the household of one of the chief pleasures of island life. No Aleut would do that, except for whisky. However, the Connecticut article makes just as good tea, provided the proprietor of it and her friends do not know the place of its construction. Also, ordering half a dozen or so at a time should make the outlay, per girl, rather reasonable. A word to the wise, astute traveler, is generally sufficient.

We reached the heart of the town, and were looking somewhat doubtfully at the hill on which the house of the treasury agent is perched, when he came out, descended to our level, and offered to do the honors of at least one rookery in person. I may add that the greatest precautions are taken on the islands to prevent the seals from being in any way disturbed. No gun is ever fired on either of them, except against poachers, and no person can visit a rookery without being accompanied by one of the chief government representatives. This is hard on them. To a man visiting a rookery casually seals are never tiresome; but to be domiciled on St. Paul for a number of years, subjected with every sea-breeze—and there is always a sea-breeze from some quarter, of course—to whiffs of something that would make a corpse uneasy; to hear seal, talk seal, smell seal, and occasionally have to eat seal, and then cheerfully pilot every party of sight-seers or seal enthusiasts over miles of tough country, and answer the same old thoughtless questions, argues staying powers, a self-sacrificing disposi-

'tion, and a love of the subject that few can boast. As Mr. Peters said,—we'll call him "Mr. Peters,"—"The seal is all very well in small doses at long intervals; but when the brute becomes a fellow's d—d business, why, it's different." It must be. He had our sympathy; but we were sorry he felt called upon to voice his troubles in that forcible manner.

Mr. Peters led the way out of the village, and we followed him and a scarcely perceptible path for nine miles. He said it was only two miles,—then qualified the statement by adding that he had noticed the long grass and weeds of St. Paul always appeared to stretch the island out most remarkably to the average tenderfoot. Now, a deck officer in the navy is no "tenderfoot," but Mr. Peters owns a space-annihilating stride that suggests the ostrich, or the cheerful occupation of the track-walker. That heart-breaking lope went right along over everything for what seemed hours. Sometimes even the path appeared discouraged, either petered out into a thin, scarcely perceptible line, or stopped abruptly to rest. So did we, frequently. Then together we would take up the struggle again, stumbling over rocks and boulders concealed by the thick, matted growth, now poised airily on some hidden pinnacle, then plump down into a crevasse. It was bone- and spirit-breaking work.

Whenever we came to a clearer space and stopped to pant, all about could be seen the burrows of the blue foxes which abound in the island. Mr. Peters said they were never shot; but the natives snared them in large numbers. The skins are valuable to the company, worth, possibly, five dollars apiece, of which the captor gets fifty cents, or an order on the store for an equivalent, according to the high grocery tariff there,—a can of condensed milk or two pounds of loaf-sugar. Many of these foxes were in sight from time to time as we went along. They were tame, common, scrubby little brutes. When one was disturbed he would move off a bit, eye us inquisitively with keen, twinkling eyes, sit down with his bushy tail for a cushion, raise his nose to the zenith, and give vent to his feelings in a way that was discreditable to him and most harrowing to his hearers. The voice of the blue fox is, perhaps, the most trying thing in nature and St. Paul. It is a cross between a whine, a sneeze, the call of a cayote in trouble, the spit of an enraged tomcat, and a long-drawn, anguished howl. Once heard, it can never be forgotten. The sight of a blue fox skin will always recall to me the singular vocal powers of its original occupant.

When we had gone the two miles that seemed nine, Mr. Peters diverged to the right. He said we were approaching the rookery, and must work around so that the "man smell," as he termed it, would not reach the animals. Without appearing in any way to impugn either the seriousness or the veracity of Mr. Peters, I am afraid we were a bit skeptical here. After experiencing the stench wafted off to

the ship, it was hard to believe that anything emanating from man—even from a Siwash Indian—could either make head against it or have any sort of prominence in such overpoweringly distinguished company. We did learn later, however, that a seal, not too ripe himself, can detect the presence of a man, a quarter of a mile away, long before he comes in sight. So, taking Mr. Peters's advice, we bore to the right over some superlatively rough country, and in a few moments the incrassated condition of the atmosphere, and the increasing volume of sound coming down on the breeze, guaranteed our being to leeward of the herd. Cautiously mounting the ridge in advance, we reached the top, and before us was a scene so unexpected, so strange, so overpowering in its immensity, so marvelous in its character of intense vitality, and of such new and curious interest, that we stopped spellbound and speechless, rooted to the spot, oblivious of Mr. Peters, able to look, but temporarily deprived of the use of other faculties. We had read about it all; but no mere pen-picture can give more than a feeble impression of the startling reality.

WM. RAWLE SHOEMAKER,
Ensign U.S.N.

(To be continued.)

AMONG OUR CONTEMPORARIES.

ONE of the great parties of our country has shown a disposition to favor subsidies and bounties for shipping with a view to develop the mercantile marine. It is altogether likely that the other great party would join in the movement if the finances permitted, for the mass of the people are now pretty well informed in regard to the amount of money derived by foreign ship-owners from the carrying of exports and imports in which our own people are directly interested.

When the Civil War broke out we were practically in possession of the choice of the carrying trade of the world, our builders noted for their skill, our seamen for ability in their calling. The war destroyed our merchant shipping, but in part only, for it was the revolution in marine architecture which continued the decline, until in 1886 "the foreign aggregate had reached $1,073,911,113, while the American had dwindled to $197,349,503. Put in another form, American vessels in 1856 carried seventy-five per cent. of our exports and imports, whereas in 1886 they carried only about fifteen per cent. What the figures will be for 1896 we can only surmise, but the census year of 1890 showed that the gap had grown still greater." At that date our percentage had shrunk to about thirteen. "In the year 1860 our carryings had amounted to $507,247,557, so that our loss had been fully three-fifths of that amount, or nearly $305,000,000 in thirty years, despite the enormous increase in our total exports and imports."

But, in spite of these depressing figures, our carrying fleet is to-day greater than that of Great Britain, because the employed tonnage of our great inland seas, and of our rivers, is so immensely greater than most persons suppose, who are not in the way of knowledge concerning it. At the Water Commerce Congress in Chicago, last summer, Mr. Vivian read a paper in which he stated that "during the thirty years ending in 1890 the records show that we built 1747 ships and barques, 575 barges, 12,423 schooners, and 17,359 sloops and other small craft, a total of 32,104 craft, representing 5,159,605 tons of tonnage, together with 10,652 steamers, having a total tonnage of 2,864,066, a grand aggregate of 42,756 craft of all kinds, having a tonnage of 8,023,671, or an average annual addition of 1379 vessels of 258,828 tonnage to our merchant fleet. Summing up the figures, we find that the domestic commerce includes (1) that of the great lakes, 53,424,432 tons; (2) that of the rivers of the Mississippi Valley, 29,405,046 tons; (3) that

of the Atlantic coast, 72,705,973 tons; (4) that of the Pacific, 8,111,278 tons, making a total of 184,394,661. Such figures certainly afford some consolation for the fact that in 1890 only 4,431,591 tons of freight were brought into and carried from United States ports under the stars and stripes."

"Every year we are paying from $150,000,000 to $200,000,000 to foreign ship-owners for freight, and a great portion of this money could be retained if we followed the example of other nations which control the carrying trade of the world."

The originator of the "whaleback" ships, Captain McDougall, has predicted, in connection with the trade of the great Northwest, that before the close of the present century the shipments from and to the head of Lake Superior will amount to fully twenty millions of tons, or more than to any port in the world.

Some little time ago that excellent periodical, the *Nautical Magazine*, in an article upon British and American yachts, remarked, "The Americans have always produced smart seamen, and during the last fifty years have taught British sailors many and many a good lesson. The cut of their sails, the shape of their bows, the set of their masts, and the speed of their ships, whether as yachts or square-rigged tea-clippers, have been the admiration and delight of two generations of old-world mariners. There are not a few men in England now who, forty years ago, standing on the poop-decks of handsome frigate-built merchantmen, anywhere between St. Helena and Rodrigues, have looked astern and seen with astonishment, not unmixed with annoyance, some beautiful Yankee clipper coming on after them 'hand over hand.' In an hour or two she would be exchanging courtesies alongside, but before the day was done that New York or Boston packet, homeward bound from Foo-choo-foo, would have strangely disappeared beneath the forward horizon in the west."

That is all true. The "tea-races" to England were won in the same way, by "Yankee packets;" and in those days no English or French ship could carry passengers across the Atlantic when a berth was to be had in the "Black Ball" or the "Swallow-tail" ships from New York, or Cope's "bright-sided" liners from Philadelphia.

In those times, say about 1850–51, the upper anchorage at Whampoa Reach, below Canton, was a sight to be remembered by those who loved to look at beautiful ships, and the "tea-fleet" was gathered waiting for "the new crop." There, moored in line, were the "Sam Russell," the "Sea-Serpent," the "Challenge," the "Flying Cloud," the "Sea-Witch," and half a dozen others, bright with paint and varnish and gilding, and their bottoms well cleaned of barnacles by the swift muddy current of fresh water which swept by them. They scrubbed copper,

holy-stoned decks, squared the yards by the lifts and braces, and hoisted and lowered colors in unison with the American man-of-war which happened to be stationed there as a sort of foster-mother in case of necessity. To relieve the *ennui* of waiting, the skippers devoted the morning to overseeing the making of spare studding-sail booms and chafing gear of most elaborate design, for, when once off, they carried sail indeed. When noontide came, all knocked off, both "Jack and his master," and then came elaborate "tiffins," given in turn, in the spacious, handsome cabins, with punkahs and saltpetre bags, and all the luxuriant appliances of the day. Each skipper tried to outdo the other, for they had no limit on their cabin expenses; the "owners" knew what they were about, and only wanted the best men, no matter what they cost. To these tiffins the officers of "the man-of-war" were always invited; the simple proceeding being that a tanka-boat came alongside, and a smug Chinese steward presented a "chit," to the effect that there would be "tiffin on board the 'Sea-Witch' at one o'clock." If any one wanted to go he put his name down, and if he did go, he had the best things to eat and drink to be found in those parts.

But one day, in the "cool weather," there would come a sudden change. Our clipper friends had men aloft bending sails, while the swivel was taken off, the second anchor secured, and all readiness was made for sea. About noon the great covered chop-boats came down the stream, with immense chattering of men and all sorts of fuss, but they seemed invariably to hit their own ship, and to swing alongside nicely. Stages were rigged, and the chests and half-chests came on board and were stowed away like magic, for the ship's capacity had been exactly measured beforehand, and each chest or half-chest fitted into place like a piece in a Chinese puzzle. These large ships were thus loaded in a few hours. Each chest had two slips of bamboo in the lashing. As they came over the gangways one slip was seized by an officer of the vessel, the other by a Chinese *comprador*, and thus 'tally' was kept. The crew of the vessel had no need to go into the hold, the Chinese stevedores made all snug; and then the hatches were put on and the hatch-covers well battened down, while, without delay, sail was made, the anchor weighed, and the Chinese pilot took charge to get her down through "the Reaches" (a tortuous navigation) and to sea as soon as possible; for in no business was time more synonymous with money than in the race with the "new crop." It was a sight to see the handling of those ships as they "backed and filled" and tided down the Reaches, sometimes almost grazing the quarter of a vessel at anchor; and, again, just escaping the tail of a mud-bank, while the grizzled old pig-tailed pilot took his bearings, squinted aloft, and in his own pidgeon-English said, "Haul down jib! Makee sick mizzee-torp'sl! Killee he dead!" which, being interpreted, meant, "Shiver the mizzen-topsail! Throw her flat aback!"

If ever there was a purely philanthropic undertaking by a government, it is that of transporting and domesticating the reindeer in Alaska, where the capture of whales and the destruction of sea life in general by means of steam-whalers has destroyed the ordinary source from which the natives have derived their supply of food, especially in the winter. This past year our Arctic whalers have been even more successful than usual, as steam enables them to keep in motion south, as the ice forms and the whales migrate, without the danger of being frozen in, which sailing-vessels would encounter under like circumstances. But the killing or dispersing of these whales has deprived the Northwest of one of the great food sources for the natives.

Dr. Sheldon Jackson, the originator of the scheme for bringing reindeer over from the Asian side, reports to the Department of the Interior that the herd of one hundred and fifty reindeer brought from Siberia a year ago as an experiment are now in good condition. The Siberian herders which came with the deer have proved efficient, and the animals seem to take kindly to their new home. Although many of the Alaskans were on the verge of starvation during the winter of 1892–93, they did not attempt to molest the herd; and the agent thinks that, if more are brought over, the natural reproduction will soon furnish a regular and most valuable food-supply.

Strange to say, one of the greatest difficulties encountered in getting together the nucleus of this herd was on the Siberian side, where, though the natives have thousands upon thousands of deer, and were willing to sell their carcasses in any number, it was only by the exercise of great diplomacy that purchases of live deer could be made, as the natives, on account of some superstition, would not sell the animals alive. After much trouble they were induced to break this curious rule, and finally, after great ceremonies to propitiate some deities likely to be offended, the agent was able to buy a few here and a few there, and at last, after a rough voyage of about one thousand miles, the herd was landed on the eastern side of Bering Sea. The landing them from the vessel was no joke, as each animal had to have its legs tied, and then slung in a canvas band, as is done with horses. The station was at Port Clarence, a little way south of Cape Prince of Wales, where a frame house had been built, and the two white keepers and the Siberian herders, with their stores, were left in charge during the long winter darkness. Their principal enemies were wild dogs, and it was necessary to shift the herd from place to place to find pasture free from snow. In spite of the idea obtaining in regard to that great, wild Northwestern land, it proved that the deer could find sufficient food over most of the country, even in the depth of winter, both north and south of the Yukon, the black moss and blueberry-bushes, of which the animals are fond, being widely distributed and abundant.

During the first season two young Alaskans were detailed to ac-

company the Siberian herders who had been brought over, to learn the habits of the deer. As the herd increases in size it is intended to place more of the native boys in this training-school, and at last to furnish them with small herds with which to make a start in life, if their proficiency and the natural increase warrants it. In this way it is hoped to stock the country with a hardy and valuable animal, supplying both food and raiment, which will take the place of the whale, seal, and walrus, "the extermination of which by white hunters has brought the native population of the great silent land to the verge of starvation."

The reindeer, while valuable chiefly for their flesh and for the milk they give, as well as for their hides, are also most useful for transportation purposes. This will be especially the case if we establish military posts in the interior of the great land, or along the Yukon, a proceeding which has been considered by the government. During the winter season a reindeer express would be the only means of transporting supplies and keeping up communication.

The two French officers, MM. Degouy and Delguey-Malavas, who were caught in the act of making drawings of the fortifications about Kiel Bay while masquerading as English yachtsmen on a cruise, were tried at Leipsic in December, and sentenced, the first to six years' detention in a fortress, and the second to four years. Their work is said to have been accomplished in a very masterly way, and even the German officers who attended the trial as experts shook hands with them upon its termination, in testimony of the frankness with which they had avowed their object when captured, and the intrepidity with which their work had been carried on.

The idea at once occurs, what would have happened to two German officers if they had been captured in France under like circumstances?

The Russian Order of St. George is essentially a military one, the reward of distinction in battle. On the 8th of December last it celebrated its one hundred and twenty-third anniversary, being the 26th of November in the Russian calendar.

The emperor is grand master of the Order; but the present emperor wears only the order of the second class. The only present holders of the first class are, in Russia, the Grand Duke Field-Marshal Michel Nicolaievitch; and, among foreigners, the Field-Marshal Archduke Albert, of Austria, who received the decoration in 1870. The members of the second class then are, besides the Emperor Alexander III., the King of Saxony, Count Miloutine, formerly Russian Minister of War, and the Prince Sviatopolsk-Mirsky, the aide-de-camp general to General Gourko.

The Grand Duke Vladimir and many others have the third-class cross, and there is one woman in the ranks of the Order, Marie-Sophie-Amelie, the ex-queen of the Two Sicilies, who was given the cross of the fourth class for her defense of Gaëta in 1861.

The four classes of the Order must be earned in succession. Each companion begins by the receipt of the fourth order for brilliant service in actual warfare, and then the succeeding ones, to the first class, must come by the same way. It is not often that a holder of the cross would have another opportunity of distinction by an "action d'éclat," and therefore the upper ranks embrace few persons.

Those who have enjoyed that pleasant book entitled "English as She is Spoke," may probably find another treasure in the Italian work mentioned by a correspondent of the *Globe and Laurel* in writing from Malta:

"Whilst looking up a word recently in an Italian nautical dictionary I came across the following: '*Corpse:* Cadavere. Distaccamento di Fanteria Marina, chiamata cosi per ischerzo dai Marinari inglesi;' the translation of which is, 'Corpse. Detachment of Marine Infantry, so-called in jest by the English Bluejackets.' I think the compiler's evident confusion of ideas is too good to remain buried among the pages of a technical work. Let us hope, however, that the recent visit of our squadron to the Italian ports has taught him the difference between the word 'Corps' and the expression Dead Marines!"

The President of the Swiss Confederation for the year 1894 is General Emil Frey, an old soldier who will be remembered by many veterans of our Civil War as a companion in arms. He is now about fifty-five years of age, a native of the canton of Basle, and received a sound education at Basle, Ulm, and Jena. When twenty-two years old he emigrated to our country, and, when the Rebellion occurred, entered the army as a private in the Twenty-fourth Regiment of Illinois Infantry. He was advanced rapidly, and was soon made major on the consolidation of the regiment with the Eighty-second of the same State. He was made prisoner at the battle of Gettysburg, and was confined at the military prison at Salisbury, and at Libby Prison, in Richmond, being held at the latter place until January, 1865, as a hostage for the Confederate Captain Gordon, who, being condemned to death, was awaiting his fate in a Northern military prison. With all the exigencies of a bitter war, it is remarkable how few retaliations of the sort were actually carried out. It is fortunate for the Swiss republic that nothing of the kind occurred in this case; but Frey must have passed some very anxious hours in that wretched old tobacco

warehouse on the banks of the James, almost within sound of the guns at Petersburg.

When the war was done, Frey returned to his native country, and was at once made Secretary of State of his canton. He was then made executive officer of Basle, and, at the expiration of that term, was, successively, Secretary of the Interior, Chief of the Educational Department, and then Chief of the Military Department.

He served many times in the two branches of the Swiss Legislature, and was the presiding officer of the National Council in 1876. In December, 1890, he was elected a member of the Federal Council, and was a member of the Military Department. Two years after he was made Vice-President of the Confederation for 1893, and now, in accordance with Swiss custom, he succeeds to the Presidency.

General Frey was Swiss Minister to the United States from 1881 to 1888.

Tucked away on the southern slope of the Eastern Pyrenees lies the very ancient state of Andorra, which has preserved its autonomy since the days of Charlemagne, A.D. 790.

There is another little state of the kind in Europe, San Marino, in Italy, which is, and always has been, more purely a republic than Andorra, and not only that, but dates farther back in history. San Marino has an army of eighty men (which, by the way, is a much larger military force in proportion to the population than our own republic supports). Mr. Theodore Bent, the traveler, has published a book about San Marino, which would be worth reading if it were only a dream of what a state might be. Some time ago there was a proposal made to the burghers, who have held their franchise from the fifth century, to cede to a company a right of opening gambling-rooms, restaurants, and hotels after the manner in which Monaco—that third Liliputian state—had long ago sold its independence. To the honor of the people, the proposal was definitely rejected, auriferous as it might have been.

But to return to Andorra. Until 1848 it had been under the mutual sovereignty of the king of the French and the Bishop of Urgel, with the protection of Spain. It was curiously different from the isolation and independence of San Marino and the serfdom of Monaco, one of the oldest of principalities.

Lately it has become more completely independent, as neither nation, on whose boundary the little state lies, cares to raise a political question which would not be worth the powder which would be burnt over it. We hear very little of the Bishop of Urgel nowadays (Urgel is the nearest city in Catalonia to Andorra), and we may suppose that that ancient see has yielded its rights of government, for Andorra has been moved to possess itself of the "world's weapons." What on

earth a small mountain community of miners and goat-herds and shepherds wanted with a modern piece of artillery is hard to tell; but, at any rate, one was recently ordered by them from Krupp, to be of the most modern and powerful type. A little while ago the great gun arrived at its mountain destination, and was placed on the highest point in the "country," so that the citizens could see that the valley was well protected. A day was appointed for the trial of the piece, which was guaranteed to carry a shot eighteen kilometres. But just as the trial shot was to be fired, some of the graybeards suddenly found that such a proceeding might cause trouble. As their own territory extended no more than six kilometres in any direction from the site of the gun, their shot, if fired, must inevitably fall in either France or Spain,—an act of war! What must be done with their elephant is, no doubt, a lively subject of discourse in the Andorran Council during the present season.

Those officers who may feel an interest in the military history of the attempt at the reimposition of Imperialism upon Mexico, 1862–66, will find a strong side-light thrown on the campaigns in reading the "Journal d'un Officier de Chasseurs à Pied. Publié par Georges Bertin, Paris. Imprimerie Pairault et Cie., 1894.

The officer in question was Captain Bochet, who had served in Africa, in the extreme East, and during the whole of the Mexican campaign. His adventures among the guerillas are especially interesting and striking, showing how valiantly the people defended their soil, especially in the West. The story is simply told, in notes and in letters to relations, which bear no marks of having been intended for publication. For the greater part of the time that the French occupied Mexico we were so engrossed in our own great struggle that the matter occupied the public mind less than such an event should have done. It was not until Sheridan and a veteran army was ready to step across the Rio Grande that the French were invited to leave. They were sick of their bargain long before, and stood not on the order of their going, leaving Maximilian to his fate; while Louis Napoleon and Bazaine came to grief in a very short time afterwards.

Captain Bochet, who appears to have been an excellent and enterprising officer, became *chef de bataillon* of the Fifty-ninth French Infantry, and was instantly killed by a shell, on the 18th of August, 1870, at St. Quentin, near Metz, after having his horse killed under him at Columbey, on the 15th.

Some time ago we alluded to the contempt in which the Brazilian rank and file are held by the Spanish South Americans, their neighbors. The other day we came across an incident related in Hudson's

book on Patagonia, recently published, concerning a battle between the descendants of the two races which seems almost incredible; but Mr. Hudson assures us that the main facts are to be found in historical documents, as well as being handed down by tradition.

More than a century ago some Buenos Ayreans had planted a colony on the Rio Negro, in Patagonia, where they lived, remote from the world, and at first much harassed by the Indians, but happy in their fine climate, their increasing herds, and their exemption from wars, foreign or civil. Very early in this century the Brazilians found in the Argentines a foe determined to oppose their aggressive and plundering policy, and for many years they waged war against Buenos Ayres, until, convinced of the futility of their efforts, they finally abandoned the contest in 1828. But during this war the Brazilians at one time conceived the idea of capturing the settlement on the Rio Negro, a small town named El Carmen, which they knew to be quite unprotected. In due time, therefore, three men-of-war, carrying a large number of soldiers, reached the Rio Negro. One of the ships came to grief on the bar, which is a dangerous one, and eventually became a total wreck. The other two succeeded in entering the river, and the troops, to the number of five hundred, were disembarked and marched on to capture the town, which is twenty miles or more from the sea. Although El Carmen was known to be a weak place, it was thought better to have the two ships ascend to co-operate with the troops. One of them ran hopelessly ashore on shifting sands, and the other only reached the vicinity when all was over with the troops. The latter had found it impossible to follow the river-bank on account of ravines and steep hills covered with thorny bushes, so they took a circuitous route which led them several miles away from water. The *guachos*, ever circling about on horseback, soon discovered the approach of the invaders, and it is interesting to see how much more military instinct they showed, although only accustomed to resistance to occasional Indian raids. All able-bodied men were quickly mustered in the little fort. They numbered only seventy, but were determined to make the bitterest resistance. The women and children were brought into the fort, and guns loaded. At this moment the commander of the town had an inspiration, and all the tallest and stoutest women were made to "man" the parapet in male attire, while dummy soldiers, hastily constructed and clothed, were placed on post. Thus, when the Brazilian force, exhausted by a march of more than thirty miles over a waterless desert on a hot day, mad with thirst, and worn out by their exertions after long confinement on shipboard, came in sight of the town, they were ill prepared to assault a place which was apparently defended by four or five hundred men. Then, too, although on ground which commanded a view of the river for several miles, they could see nothing of the two vessels which were to co-operate with their heavy guns,

so they determined to wait for them, and left the vicinity of the town without firing a shot. Then the commander (we wish Mr. Hudson had given us his name) had another inspiration, and as soon as the dispirited and straggling Brazilians had disappeared behind the rising ground, he sent all of his seventy men to collect and bring in all the horses which were at pasture in the river valley above. And so it happened that, when the invaders had been about four hours on the return march, the thunder of innumerable hoofs was heard in their rear, and looking back, they saw a great army of horsemen, as they imagined in their terror, charging down upon them. These were the seventy men, spread out in a great half-moon, in the hollow of which over a thousand horses were being driven at frantic speed. The Brazilians formed and fired a volley; but, though many horses were killed or wounded, their drivers urged them on, and in a few moments, blind with panic, they were trampling down the invaders. In the mean time the Patagonians began to fire into the struggling mass of horses and men, and a stray shot killed the Brazilian commander, when his surviving troops threw down their arms and surrendered.

There was little wonder that they did so, for they had had no water for more than a day, and, leaving their arms lying on the plain, the captors marched them down to the river, which was four miles away. Like a herd of cattle which is maddened by thirst they rushed into the water, trampling each other in their haste, so that some were smothered, while others, pushed too far out by the surging mass behind, were swept from their feet by the swift current and drowned. When the survivors had drunk their fill, they were driven like cattle to the Carmen, and shut up in the fort.

But this curious little picture of entirely isolated warfare does not end here. We are told that on the evening of this disastrous day for the Brazilians their one remaining man-of-war approached the town, but, going too near shore on the opposite bank, took the ground. Her ship's company was quickly apprised of the disaster to the land force, for the resolute Patagonians, from the shelter of a grove of trees on the bank, peppered the decks with musket-balls, the Brazilians finally leaping overboard and swimming on shore. When darkness fell, the colony of El Carmen had crowned the day's work by the capture of the imperial war-vessel "Itaparica."

This old-time war story reminds the writer of one of the most singular and impressive sights which it ever fell to his lot to see,—not even excepting the great review before the three emperors, at Berlin, after the close of the Franco-Prussian War. That was a parade of veterans, in new uniforms, most perfectly conducted and aligned, 'horse, foot, and artillery," and worth traveling many miles to admire.

But the body of men we remember best was that brought by General Urquiza, of Entre Rios, to the left bank of the river, when some of the vessels of Shubrick's squadron were lying at Rosario, in waiting to see whether Lopez would negotiate or fight. Urquiza came down to act as a mediator, for it was not to his interest to have a war "up river" just then; and he was successful in bringing Lopez to terms. Why he brought a force of three or four thousand of his *guachos* with him it is hard to say, except for "grandeur." There were too many for a body-guard, and they certainly could not fight the gunboats if they had wished to do so. However, he did bring them, and they were a picturesque body, as much so as any Arab riders we have ever seen. Most of them had red "ponchos" and white "calzones," and they rode at speed, driving before them with their long lances the spare horses and the beef cattle, which were their sole provisions. The setting sun glanced down on this mass of horses and men and wild oxen in a cloud of dust, and then, when the river-bank was reached, there was a sudden rush for the water by men and animals. It was as wild and striking a scene as could be found in any part of the world. There were few mediæval barons who lived in greater pomp than Urquiza, whose title was President of Entre Rios. His house was a castle, and all the *guachos* his retainers, bound to do his will. The traders and others who were in the boundary were protected by him as long as they discreetly contributed to the finances of the state.

As a result of the great Civil War we had many remarkable compilations, such as the "Medical and Surgical History of the War," a work which for excellence in typography, illustrations, and completeness is yet without a rival. The "Anthropometrical and other Statistics" was also a new departure, full of valuable information and upon a plan and scale creditable to the nation, and the monumental "Official Records of the Union and Confederate Armies," with its maps of military operations and of battle-fields is still in course of publication,—a perfectly reliable source of information for the future historian, with ungarbled reports, orders, and correspondence *from both sides*. The "future historian" is in one way an enviable person, for never has any one had his way made so easy for him as the writer who, about 1930, undertakes the relation of the causes, the progress, and the effects of that four years' struggle.

These thoughts have been suggested by another glance at the sheets sent by Lieutenant-Colonel Fox, being a part of his wonderful work upon regimental and naval losses during the Civil War. He says, "Gettysburg was the greatest battle of the war; Antietam was the bloodiest. The largest army was assembled, by the Confederates, at the Seven Days; by the Unionists at the Wilderness. Gettysburg

may be considered the greatest battle for various reasons. The strategic issues involved were the most important; it was the turning-point in the fortunes of the Confederates; the contending armies were not only large, but were at their best in point of discipline and experience; while the loss of life exceeded that of any other battle-field of the war. Antietam was the bloodiest battle. More men were killed on that one day than on any other one day of the war. There were greater battles, with greater loss of life, but they were not fought in one day as at Antietam. At Gettysburg, Chancellorsville, and Spottsylvania the fighting covered three days or more; at the Wilderness, Cold Harbor, Shiloh, Stone River, Chickamauga, and Atlanta the losses were divided between two days of fighting; but at Antietam the bloody work commenced at sunrise, and by four o'clock that afternoon it was over."

Of naval operations, Colonel Fox says, "The number of men in the naval service during the war was 132,554, of whom 7600 were already in the service at the outbreak of hostilities. There were 1804 killed and mortally wounded in battle. This includes 342 who were scalded to death, while in action, by escaping steam from boilers which had been pierced by the enemy's shot; also 308 men drowned in action. The latter were men who went down with their ships, their flag flying, and their guns firing defiantly from port-holes level with the waves. In addition to the 1804 who lost their lives in battle, there were 2226 who survived their injuries." . . .

"Unlike the army, the mortality from disease was, apparently, not in excess of the normal death-rate of civil life." . . .

"The changes in the methods of naval warfare, first introduced in the American war, brought a class of casualties hitherto unknown in naval combats. Our sailors fought in previous wars without the terrible danger from exploding boilers and escaping steam; and when their slowly sinking wooden ships went down in action, there were opportunities for escape far different from any offered on an ironclad sent rushing to the bottom by the explosion of a modern torpedo. In the action at St. Charles the gunboat 'Mound City' lost 150 men, killed or wounded, out of a crew of 175, but 3 officers and 22 men escaping uninjured; 82 were killed by gun-shot wounds or scalded to death, and 43 others were drowned, or shot while struggling in the water." . . .

"If some of the casualties appear trivial, let it be remembered that on most of the vessels named the crews were small; and that the loss of life, in proportion to the number engaged, was as serious as at Trafalgar or the Nile." . . .

"When the ironclad 'Tecumseh' led the column of monitors across the torpedo line at Mobile, it moved as a forlorn hope which would not have been necessary in the naval combats of previous wars."

In a foot-note Colonel Fox gives the following extract from Mahan's "Navy in the Civil War," a story which cannot be told too often: "As the 'Tecumseh,' T. A. Craven, commander, went into action at Mobile Bay, it struck a torpedo and sank instantly. The vessel went down head foremost, her screw plainly visible in the air for a moment to the enemy, that waited for her, not two hundred yards off, on the other side of the fatal line. It was then that Craven did one of those deeds which should always be linked with the doer's name, as Sydney's is with the cup of cold water. The pilot and he instinctively made for the narrow opening leading to the turret below. Craven drew back: 'After you, pilot,' he said. There was no afterward for him; the pilot was saved, but he went down with his ship."

The *Army and Navy Gazette* has the following paragraph: "According to the current notion, a 'Swiss Admiral' is synonymous with 'something that does not exist in nature.' If this were altered to 'something which does not exist at present' it would be nearer the mark. Mr. Berthold Haller recently presented to the Historical Society of Berne an interesting treatise on the old Bernese navy in the lake of Geneva. It was a flotilla destined to protect the Vaud, first against Savoy, then against France. Formed in the sixteenth century, it was already composed, in the second half of the seventeenth century, of a goodly number of galleons and barques. Some of these war-ships are said to have been able to carry three hundred soldiers on board. There was also a naval school, a wharf of construction, and, so to say, a Swiss admiral. In 1753 this flotilla was dissolved. But more surprising things have happened than that the republic of Switzerland should one day create another lake navy for her protection."

The English *United Service Gazette* comments to some extent upon an anonymous pamphlet published in France last winter, and believed to be by an officer holding high rank in the French army. The writer believes that "war is too well prepared to be impossible. Some persons, nevertheless, think that it is so well prepared that nobody will have the folly to provoke it. The victor himself would lose in it half his armies and would be ruined. This is calculated to make the most adventurous reflect." The French writer says that the coming war must end in either the victory or the defeat of the Triple Alliance.

In the first event he looks for the following result as regards the fate of France: Germany will take from her six departments in the northeast, Algeria, and Cochin-China; and Italy three or four departments in the southeast and Tunis. In addition she will have to pay a war indemnity of six milliards. Finally, she will be forced to reduce

her standing army to fifty thousand men. The population of the country will be reduced to twenty-five million, and thenceforth France will be a "negligeable quantity." As regards Russia, the writer says she will be thrown back beyond Poland, and lose all her Baltic provinces. Finland will go to Sweden, and the seventeen million of German-speaking Austrians will be incorporated in the empire, with two capitals, Berlin and Vienna. The Hapsburgs will have to console themselves by taking what they want on the right and left of the Danube, from Montenegro to the Black Sea. Trieste will become the Mediterranean port of the German empire, "which will certainly not please the Italians; but if they grumble too much, Tunis will be taken from them and annexed to German Algeria. Thus the whole of Europe will be at the feet of the Emperor of Germany."

Then comes the other side of the question. Suppose the Triple Alliance is defeated. What then? The reverse, according to the writer, would be complete and irredeemable.

France would then take the left bank of the Rhine, minus Belgium, if she had behaved discreetly and been loyally neutral; but if not, Belgium will be turned into a French province. Germany will return to her former condition,—a number of independent little states, with the old confederation. Russia will take all the Slav countries from Germany and Austria. Italy will lose Piedmont and Liguria, with which France will do as she sees fit. The Two Sicilies will be revived under the form of a kingdom or a republic, according to the wishes of the inhabitants, with Naples for a capital. The other Italians will, if it be their pleasure, maintain the dynasty of King Umberto. The war indemnity to be given by the vanquished to the two victorious allies will be six milliards, which the author says will not be extravagant, seeing that France alone gave five milliards to Germany in 1871. This territorial distribution once accomplished, a general disarmament will be enforced, and war prevented by the organization of a sovereign tribunal to settle all international differences.

In either event the author fails to see what benefit would accrue to England. "If," he writes, "she goes against France and Russia in the struggle, their defeat will not benefit her in any way. A German navy will be created, and in a short time she will find herself no longer mistress of the seas, and her colonies will be placed in danger. If, on the other hand, the Dual Alliance is victorious, she will have to turn out of Egypt immediately, while in respect to India she will have to try conclusions with Russia. Will she be successful? It is more than doubtful. All historical precedents are unfavorable to her. A continental power always finishes by overcoming a maritime power. Thus Rome ended in vanquishing Carthage. If she maintains a sympathetic neutrality towards France,—and that is all she is asked to do,—France will, in a certain measure, be bound to have some regard for her, and

will, supposing it to be necessary, plead the interests of England against the excessive ambition of Russia."

It is possible that, before these lines are printed, the hostilities so long expected may have begun. The danger is imminent, and yet so perfectly are the prospective combatants prepared, and so well aware are they that, with evenly balanced forces, a little thing may upset the most carefully prepared plans, that the responsibility of deliberate declaration of war will not be taken by any one. At the same time, some collision of small forces, in some obscure place, might light the match at any moment.

The Century Company lately published a handsome volume made up of articles which have appeared in the magazine during the last few years, and which are grouped under the title "Famous Adventures and Prison Escapes of the Civil War," far better reading for those who like adventure than any romance.

On the principle of "place aux dâmes," we suppose, the first and longest article is the "War Diary of a Union Woman in the South," simply written, and bearing internal evidence of its truthfulness in every line. Her description of the scenes at Vicksburg are particularly vivid. Here is a scene with a Confederate soldier who had often boiled his soup at her fire. "Is it true about the surrender?" "Yes; we have had no official notice, but they are growling out at the lines now, and the men in Vicksburg will never forgive Pemberton. An old granny! A child would have known better than to shut men up in this cursed trap to starve to death like useless vermin." More details follow, showing life in a beleaguered town, and then the rush for provisions from the Union quartermasters' boats is described.

"Towards five Mr. J. passed again. 'Keep on the lookout,' he said; 'the army of occupation is coming along.' And in a few minutes the head of the column appeared. What a contrast to the suffering creatures we had seen so long were those stalwart, well-fed men, so splendidly set up and accoutred! Sleek horses, polished arms, bright plumes,—this was the pride and panoply of war! Civilization, discipline, and order seemed to enter with the measured tramp of those marching columns, and the heart turned with throbs of added pity to the worn men in gray, who were being blindly dashed against this embodiment of modern power."

Following this article is William Pittenger's "Locomotive Chase in Georgia,"—only ten pages, but full of meat as a nut, and the kind of thing which makes a healthy lad thrill with excitement, and wonder "whether it can really be true." It was true enough, unfortunately, and Willliam Pittenger was one of the survivors of this extraordinary

raid by twenty men, members of the Second, the Twenty-first, and the Thirty-third Ohio Volunteers, and one civilian, William Campbell. Of these, Campbell, John J. Andrews, the leader, and six others were executed as spies, several escaped, and the rest were exchanged.

The story is too long and complicated for us to attempt to give a sketch of it; but we venture to say, if the incidents of that headlong race and pursuit by rail could be faithfully produced on the stage, no melodrama ever conceived could have a chance with it.

We never cared very much, personally, about the achievements of the banditti called "Moseby's Partisan Rangers," or "Morgan's Rough Riders." Those who like that kind of thing will find two articles describing it. As a part of the history of guerilla warfare they are interesting, no doubt.

It may have occurred to some readers that the title of the book in question has not been borne out by any of the articles we have mentioned, but the three concluding ones, occupying about half of the three hundred and forty pages, are really occupied with thrilling escapes from prison or from pursuit.

Frank E. Moran says, in regard to Colonel Rose's tunnel at Libby Prison, "Among all the thrilling incidents in the history of Libby Prison, none exceeds in interest the celebrated tunnel escape, which occurred on the night of February 9, 1864. I was one of the one hundred and nine Union officers who passed through the tunnel, and one of the ill-fated forty-eight who were retaken. I and two companions,—Lieutenant Charles H. Morgan, of the Twenty-first Wisconsin Regiment, who has since served several terms in Congress from Missouri, and Lieutenant William L. Watson, of the same company and regiment,—when recaptured by the Confederate cavalry, were in sight of the Union picket posts. Strange as it may appear, no accurate and complete account has ever been given to the public of this, the most ingenious and daring escape made on either side during the Civil War. Twelve of the party of fifteen who dug the tunnel are still living, including their leader. This leader was Colonel Thomas E. Rose, of the Seventy-seventh Pennsylvania Volunteers, who after the war entered the regular army as a captain in the Sixteenth United States Infantry." The illustrations and diagrams accompanying the paper give it additional interest.

"A Hard Road to Travel Out of Dixie," by W. H. Shelton, attracted great attention when it appeared in the *Century*, and certainly does not lose its intense interest upon reperusal. In our boyhood we used to read of the escape of Latude and such performances as something entirely foreign to our country and our mode of living, but some of these true stories are equal in interest to any to be found.

The last story of the book is the "Escape of General Breckenridge," by John Taylor Wood, who was one of the aides of Jefferson

Davis, and the only one of that gentleman's party who escaped capture except a Lieutenant Barnwell. Wood afterwards met General Breckenridge and his aide-de-camp, and with three others escaped to Florida, and thence, after great privation and exposure and daring adventures, arrived in Cuba, half starved and wholly ragged.

Long ago a description of the training of the war-dogs of France and Germany was given in these notes. Quite recently the English *United Service* had an amusing editorial upon the subject.

"How are the German war-dogs to be made to distinguish between a friend and a foe?" says our contemporary. "Such was the momentous problem which, according to a French military correspondent, for a long time exercised the ingenuity of the Jägers intrusted with their education. And yet—now that it is solved—the problem appears to have been absurdly easy, involving no greater originality than the dressing of a number of German soldiers in French and Russian uniforms! The soldiers thus disguised were specially told off to ill-use the poor dogs on all possible occasions, and to still further insult them by invariably speaking Russian and French in their presence. Now, every one knows that the keenest instincts possessed by dogs lie in their sense of hearing and smelling. To hear execrable Russian spoken, and to be forced, *nolens volens*, to smell *pantalon rouges*, ill-cut and fashioned possibly by a German Jew, would be quite enough to disgust any self-respecting member of the canine race, and it seems, therefore, something like a libel on the friend of man to charge him with nourishing international vindictiveness because under such circumstances he has learnt to show his teeth at the *pantalon rouge*. Surely it would have been more generous to make some allowance for the depraved system of education adopted in the case of the German war-dog, and to admit the possibility that his fine ear and exquisite sense of smell might, perhaps, enable him to detect, and even fiercely to resent, the gross fraud perpetrated upon him by his unprincipled instructors, if at any time the soft accents of the genuine *pion pion* should fall upon his ear, or he should, peradventure, sight the picturesque reality of the *pantalon rouge*. No one is more ready to admit a fault and to express suitable contrition for it than the dog, and his character ought not to be needlessly taken away until it is proved that he has maliciously lent himself to the fraud knowing it to be such. It is evident, however, that the writer has none of the real instincts of the sportsman, and that his acquaintance with the dog is limited to the depraved Boulevard variety, or he would not talk so lightly of the dog's deplorable propensity to *la flânerie*, nor of the facile readiness with which he allows himself to be turned from the strict path of duty by the seductive pursuit of *le cotillon*. If the French writer had paused

here, the idea would have been quite droll enough of representing Fritz masquerading as a foreigner and airing his linguistic attainments by teaching, not Dog-Latin, but polished French and Russian. Having got so far, however, in elucidating the education of a German dog, he cannot resist forming a further momentous problem which, as he himself is evidently unable to solve, it must necessarily be still greatly preocupying the Teuton mind, and that is, How is the dog to distinguish between an enemy and a friend at night when all 'breeches' are of apparently the same color? We can only hazard the suggestion that scent lies warmer at night than in the day, and that the dog most certainly does not recognize a friend nor detect a suspicious character solely by the color of his breeks."

The foregoing extract is amusing enough to one who has ever heard the German manner of pronouncing French, and we presume their accent when speaking the Russian language is much the same.

In former times the French soldier's red "breeks" used to be called *pantalons garances*, from the madder with which the cloth is dyed. It was then a very peculiar shade of red; but perhaps they have another color for the "red-legs" now. At any rate, it is a bad color for trousers for soldiers, and gets shabby very soon in service. There can be no better colors for military service than blue and gray.

E. SHIPPEN.

NAVAL AND MILITARY NOTES.

NOTES AND DATA ON NAVAL AND MILITARY MATÉRIEL AND ALLIED SUBJECTS.

It is the intention to collect and publish in this department of the "United Service" all information obtainable from current publications and other available sources concerning ships, guns, armor, explosives, small-arms, military and maritime affairs, and kindred subjects. As the data are derived largely from unofficial sources, strict accuracy cannot be expected; but all reports will be carefully examined and compared with others on the same subject, and it is hoped, by this means, to attain fairly correct results. Erratum notices will be published whenever errors are discovered in data previously given. As the development of the present plans for collecting information progresses, it is hoped to secure fuller and more authentic reports.

Great Britain.

The old broadside armor-clad *Northumberland* is undergoing refit at a cost of $250,000. She will be completed next spring.

Two 148-foot torpedo-boats have been launched by White, of Cowes. The engines are by Maudslay, and are to give a speed of 23 knots.

Harvey armor for the *Renown* has been ordered from Cammell & Co. and from Vickers.

Contracts have been given out for six more torpedo-boat destroyers,—three to Thorneycroft and three to Yarrow. These vessels have been referred to and fully described in the August and September NOTES (see *Havock*, *Hornet*, and others). The *Havock* has had preliminary trials, and developed 26.5 knots with 165 pounds of steam. The contract requirement is 26 knots, though 27 knots is expected. It is said that the vessel was not pushed to her utmost. The contract requirement for the *Hornet* is 27 knots.

The cruising battle-ship *Centurion*, whose failure on her first forced-draft trial was mentioned last month, had a successful trial on October 6. The results were: Steam in boilers, 146 pounds; vacuum, 27.3 inches; revolutions, 104.7; I. H. P., 13,174; air-pressure, 1.58 inches; mean speed by patent log, 18.51 knots. The ship was said to be at her designed load-draught of 25 feet 6 inches.

The first-class battle-ship *Resolution* had her forced-draft trial on August 31. Like her sister ships she was not pushed to her utmost, as the development of 11,000 I. H. P. only was aimed at instead of the 13,000 for which the machinery was designed. This sort of trial is officially styled by the Admiralty "modified forced draft." The vessel was very light, drawing only 24 feet 9 inches, or 2 feet 9 inches less than at designed load-draught. The results were: Steam in boilers, 148.8 pounds; vacuum, 27.8 inches; revolutions, 103.5; I. H. P., 11,379. The air-pressure was 0.63 inch, and the speed by patent log 17.92 knots; but as the ship only displaced about 11,500 tons on trial instead of 14,150, the record of speed amounts to nothing, even if the patent log gave correct results, which is far from likely.

The first-class torpedo-gunboat *Hebe*, of the *Jason* class (for description see May NOTES), all of which may be considered failures for the purpose designed, had a 3-hour forced-draft trial on October 6. The results were: Steam, 148 pounds; revolutions, 247; I. H. P.,

3544; speed by log, 19 knots. The air-pressure in the fire-room was 2.8 inches.

After experiencing much difficulty with her machinery, the second-class cruiser *Cambrian* (fully described in NOTES for May, 1893) has successfully finished her trials. The results with natural draft were: I. H. P., 7150; speed by log, 19.4 knots; with forced draft the I. H. P. was 9176, and speed by log 20.8 knots.

The ferrules which have been applied to many boiler-tubes in the British service are giving a great deal of trouble. They tend to choke the tubes, assist to accumulate soot and dirt, and almost prevent sweeping the tubes. It is said that no vessel fitted with ferruled boiler-tubes can steam more than six hours with forced draft, as at the expiration of that time the tubes at the ferrules are nearly all completely choked. No method has yet been devised of overcoming the difficulty, though several have been tried. The efficiency of the ferrule for tubes of small diameter is also called into question.

The new set of boilers for the torpedo-gunboat *Sharpshooter* have been ordered of Delaunay, Belleville & Co., of St. Denis, France, and are of the Belleville tubulous type. They were to have been ready for delivery on November 15 last.

A paragraph has been going the rounds of the British papers stating that the *Melpomene* had recently steamed from Callao to Victoria, B. C., in 22 days without recoaling and on her coal-supply of 400 tons. This may be so. Many very unlikely things happen, but this approaches the miraculous rather closely; the more so as we recollect that this is the very ship whose great deficiency in steaming radius was one of the first things to call general attention to the absurd endurance tables furnished by naval constructors derived from purely theoretical considerations. On her way out to the Pacific about three years ago, while making passage to Montevideo, she was compelled to put into Bahia to coal, her bunkers being practically empty. This gave a radius of action of about 3000 miles. The *Charleston*, of the United States navy, is considered a very economical ship at low powers, and requires about 750 tons with a clean bottom to make 5000 miles without recoaling. If she were as economical as the *Melpomene* is claimed to be, she ought, considering the difference in size, to do it on less than 500 tons. The conclusion that we are driven to is that the *Melpomene* must have used more than 400 tons,—probably carried a large deck-load, 150 tons or more, and which she could not have carried on a stormy coast or in war-time, when it would have interfered with the working of the battery.

The trials of the guns and mountings of the first-class battle-ship *Repulse*, another of the *Royal Sovereign* type, have taken place.

The conditions under which the firing took place from the four 13½-inch 67-ton breech-loaders, carried in a couple of barbettes, were practically the same as on the many previous occasions when they have been tested on board her Majesty's ships. Three rounds were discharged from each gun, the first with three-quarter charges (472½ pounds) of slow-burning cocoa powder, technically known as "S. B. C.," and the remainder with full charges of 630 pounds, carrying a projectile weighing 1250 pounds. The two first rounds were fired independently, and the last round from each pair simultaneously, with the object of subjecting the recoil-presses and other hydraulic fittings to the severest test that can be applied. When both guns were run out together, though not exactly on the beam, the ship was found to heel over 2 degrees to starboard. A round was also discharged from one of the guns in each barbette with extreme elevation (about 14 degrees) for the purpose of ascertaining the *maximum* recoil.

The principle and design of the hydraulic mountings for the barbette guns of the *Repulse* are practically identical with the gear supplied by the Elswick Company to the sister ships. Experience, however, suggests improvements in apparently the most perfect mechanical appliances. In the hydraulic equipment of the forward barbette of the *Repulse* there

are two novelties, which may be regarded as distinct advances. The new arrangements are a development of the duplications made to prevent disablement in the event of a break-down taking place in one of the services. The existence of only a single hydraulic supply for working and traversing guns upon each turntable has long been a source of danger, and hence great importance was attached to the trial of a device which had been tentatively fitted to the forward barbette with the object of proving the practicability of working the heavy guns after the main supply of power had given out. In all the older battle-ships any failure in the supply-pipes on one side of the barbette necessarily throws both guns out of action. By the new arrangement the supply is provided from both sides, so that in case of the pipes on one side being fractured those on the other remain efficient. Nothing could have been better adapted to demonstrate the practical utility of the new fittings than the ordeal to which they were subjected during the firing. The main supply was shut off as though it had actually been disabled, and the whole of the gunnery trials forward were carried out by means of the auxiliary supplies. As the copper hydraulic piping to all the important working parts is apt to fracture under exceptional strain, and as in consequence of its numerous curves and complicated leads it cannot be readily renewed, measures have also been taken on board the *Repulse* for providing spare lengths of india-rubber hose encased in strengthening spirals of steel wire by which the defective pipes may be expeditiously replaced. The flexibility of the substitute enables it to be easily fitted in difficult positions. The hose-piping is about an inch in internal diameter, and, though it was worked experimentally in the forward barbette at a pressure of 1000 pounds to the square inch, it answered its purpose admirably, and it is proposed to adopt it in all the ships of the *Royal Sovereign* class. Similar hose, but of much greater diameter, has been fitted to the main supply-pipes connecting the duplicate pumping engines, but this remains to be tried. As the breech arrangements of the 13½-inch guns are liable to derangement it is contemplated to provide the guns with spare mechanism, but so modified in design that the same set will suit either a right- or a left-hand position. A set has been actually supplied to the *Repulse* for subsequent trial.

France.

The battle-ship *Jauréguiberry* was launched at La Seyne, October 27. In general design she is practically a duplicate of the *Charles Martel*, described in the NOTES of last month, but of slightly different dimensions. The battery of each is the same in number, calibre, and disposition, and the armor is similar in all respects. The dimensions are: Length, 357 feet 7 inches (on the water-line); beam, 72 feet 2 inches; draught (extreme), 27 feet 8 inches; displacement, 11,780 metric or 11,590 long (2240 lbs.) tons. Like the *Martel* she has a nearly vertical stem, curving out to form a short ram, and does not possess the long snout we are accustomed to regard as a certain feature in all French ships. The engines are twin-screw, triple-expansion, and the steam is furnished by 24 boilers of the Lagrafel-D'Allest type. The anticipated horse-power with natural draft is 13,000, with forced draft 14,200, and the expected speeds are respectively 17 and 17.5 knots. The guns are arranged exactly as in the *Captain Prat*, though of heavier calibre. There are two 11.8-inch guns, one in a closed turret on the fore-and-aft midship line forward, and the other similarly mounted aft; two 10.8-inch guns, also in closed turrets, sponsoned out on each side amidships. On each side, a little abaft the forward turret, and again a little forward of the after turret, is a small turret containing one pair of the eight 5.5-inch rapid-firing guns. In addition there are on the upper deck and superstructure, and in the tops of the military masts, four 2.5-inch, twelve 3-pounder, and eight 1-pounder rapid-fire guns. There are six torpedo ejectors, of which two are submerged. The armor belt extends from bow to stern, 17.7 inches thick amidships, and tapering towards the ends. Above the belt the side plating is 3.9 inches thick. The protective deck is 2.75 inches. The turrets of the heavy guns are 14.6 inches thick, and of

the 5.5-inch guns, 3.9 inches. All of the eight turrets are constructed upon M. Lagane's balanced system, and no matter in what direction they are trained, the trim of the ship is not appreciably altered. This is effected without material addition to the weights. Electric power will be used to train the turrets, hoist ammunition, and for many other purposes, besides lighting the vessel. For the latter purpose there will be 550 incandescent lamps, and six Mangin search-lights will be carried.

The protected cruiser *Bugeaud* was launched at Cherbourg on August 28 last. This vessel, built of steel, sheathed with wood and coppered, is of the following dimensions: Length between perpendiculars, 308 feet 5 inches; beam, 43 feet 5.6 inches; draught aft, 20 feet 8 inches. The displacement is 3722 tons. The indicated horse-power with forced draft is 9000, and the corresponding anticipated speed 19.25 knots. The expected speed with natural draft is 18 knots. The engines are twin-screw, inverted, vertical, triple-expansion. The boilers are tubulous, of the Lagrafel-D'Allest type. The protective deck is 1.2 to 3.1 inches thick. The battery consists of six 6.3-inch B. L., four 3.9-inch R. F. G., eight 3-pounder and twelve 1-pounder R. F. G.; and six torpedo injectors will be fitted.

The torpedo-cruiser *D'Iberville* was launched at Saint Nazaire on August 26, 1893. Her dimensions are: Length, 262 feet 6 inches; beam, 26 feet 11 inches; mean draught, 11 feet 2 inches; displacement, 925 metric tons, or 910 tons of 2240 pounds. The vessel is fitted with a light protective deck 0.6 of an inch thick, and further protection is afforded by the coal. The anticipated I. H. P. of the engines is 5000, and the corresponding speed 21.5 knots. The battery consists of one 3.9-inch, three 9-pounder (2.55-inch), and four 1-pounder rapid-fire guns. Four torpedo-tubes are fitted. The coal-supply is 115 tons, and the complement of men and officers 126.

The sea-going torpedo-boat *Mousquetaire* recently completed her trials. The speed for three runs over the mile was 25.44 knots, but the average speed for the whole trial was reduced to 24.77 knots by an accident causing a leak in one of the steam-pipes. The dimensions of the *Mousquetaire* are: Length, 154 feet; beam, 15 feet 9 inches; draught 7 feet. The displacement is 125 tons. The indicated horse-power of the machinery is about 2100. Two 1-pounder R. F. G. and two torpedo-tubes are carried. The coal capacity is 18 tons.

The sea-going torpedo-boat *Lansquenet* was launched at Nantes, August 26, 1893, and has since undergone her trials. The speed developed was a little over 26 knots, that for which the machinery was designed. The *Lansquenet* displaces 138 tons, and is of the following dimensions: Length, 165 feet 3 inches; beam, 15 feet 7 inches; mean draught, 4 feet 2 inches. The I. H. P. of the engines is 2800.

The sea-going torpedo-boat *Chevalier*, 123 tons, built by Normand, of Havre, developed 27 knots on her trial. The horse-power is not stated. The *Chevalier's* dimensions are: Length, 144 feet 4 inches; beam, 15 feet 9 inches; draught aft, 6 feet 8 inches. The anticipated I. H. P. was 2000, with a speed of 25 knots. Two 1-pounder rapid-fire guns and two torpedo-tubes are carried. The coal capacity is 16 tons.

Three 36-metre boats, which were recently tried at Havre, exceeded considerably the requirements. *No. 177* and *No. 178* made 23 knots, and *No. 179* made 24 knots. The requirement was 21 knots, though the expected speed was 23.

The 14- and 16-centimetre guns of the *Cecille* have been replaced by rapid-fire pieces of the same calibre.

The trials of the *Gustave Zédé* have been retarded owing to an accident with her accumulators. The leaden plates bent and, forming a short circuit, were rapidly exhausted. The *Zédé* is built of bronze, and is cylindrical with ogival ends. The length is 131 feet; displacement about 266 tons. The I. H. P. of the machinery at maximum speed is expected to reach 720, and the accumula-

tors are sufficient to give this power and a speed of 15 knots for two hours, or a speed of 9 knots for six hours with about 250 I. H. P. The *Zédé* has one torpedo-tube forward.

An explosion occurred on the torpedo-boat *Sarrazin*, while she was running over the measured mile on trial, by the longitudinal rupture of a tube in her boilers. Five men died from their injuries and four men were seriously injured. The boiler was a tubulous one, designed for a very large heating surface in proportion to its dimensions.

The French armored cruiser *Chanzy* was launched at Bordeaux on January 24. She is one of four similar cruisers, each 4650 tons displacement, 347 feet 7 inches long, 45 feet 9 inches beam, with a draught of 18 feet. Two horizontal engines, each driving a separate screw, develop 7400 indicated horse-power with natural and 8300 horse-power with forced draft, and are intended to give speeds of 17 and 19 knots.

Protection is given by an end-to-end steel belt 3½ inches thick and an over-all armored deck from 1.5 inches to 3.9 inches thick. A 7.4-inch gun is to be mounted on the poop and another on the forecastle, and six 5.5-inch quick-firing guns are sponsoned out, three on each broadside, in turrets worked by electricity. In addition to these there will be four 2.5-inch guns, six 1.8-inch guns, and six Hotchkiss revolving 1.45-inch guns, all quick-firing.

There will be five torpedo-tubes,—one on either bow, one on each beam, and one right aft.

Machines for the artificial cooling of powder-magazines on board ship are in course of construction at Mourillon. Those for the *Redoubtable* have already been delivered, and one for a magazine on the *Hoche* is on trial.

The small-arm armament of the French fleet is to be changed to the Lebel small-calibre rifle.

Spain.

The armored cruiser *Infanta Maria Teresa* has completed her trials. The results are given in the following table:

	Forced Draft.	Natural Draft.
Steam-pressure (pounds) . . .	145	145
Revolutions, starboard	117	105
" port	118	106
I. H. P., starboard	6,857	4,686
" port	6,901	4,872
" total	13,758	9,558
Air-pressure (inches)	1	0.19
Vacuum, starboard (inches) .	27.5	27.5
" port (inches)	28	27.5
Speed, in knots	20.15	18.5

The speed was determined by standardizing the screws by runs over the measured mile immediately before and immediately after the trials. The number of revolutions corresponding to the various speeds was thus determined. This method of determining the speed is particularly accurate if the depth of water over the measured mile course is sufficient to avoid drag and excessive wave-making at the higher speeds. This method has the effect of underlogging rather than overlogging a ship, and is consequently not much in favor with those nations or builders who desire to impress their neighbors by high apparent, but really fictitious, speeds determined by patent logs. The duration of the natural-draft trial was eight hours, and of the forced-draft trial 4½ hours. The ship, at the beginning of each trial, was down to her mean load-draught of 21 feet 6 inches, at which her displacement is 6890 tons.

The *Infanta Maria Teresa* is one of six sister ships building for the Spanish navy and the first to undergo her trials. The others are the *Almirante Oquendo*, *Cardenal Cisneros*, *Viscaya*, *Cataluña*, and *Princesa de Asturias*. Their dimensions are: Length over all, 364 feet; between perpendiculars, 340 feet; beam (extreme), 65 feet; and at a mean draught of 21 feet 6 inches the displacement is 6890 tons. They have the usual ram bow, and carry two military masts with a single top and a signal yard on each. The masts and the two smoke-stacks have a slight rake. For a length of 315 feet long the water-line amidships there is an armor belt of Cammell compound

plate 5 feet 6 inches deep, 12 inches thick, and backed by 6 inches of teak. They have the usual cellular double bottom and eleven transverse water-tight bulkheads, and the coal-bunkers are arranged to give as much protection as practicable. The total capacity of the bunkers is something over 45,000 cubic feet, say 1000 tons of coal, and 490 tons of fresh water are carried under the boilers. The pumping and ventilating arrangements are very complete, and a well-considered system of voice-pipes connects the various steering and fighting stations with each other and with the engine-room, ammunition passages, and magazines, together with the usual telegraphs. The battery is as follows: Two 28-centimetre (11-inch) guns, in oval-topped barbette turrets, one forward, one aft; ten 14-centimetre (5.5-inch), four in sponsons—two just abaft forward turret with fire directly ahead, and two forward of after turret with stern fire—and the remaining six in recessed ports between. The arrangement of the main battery, and in fact the general design of the ship, resembles that of the British 5600-ton belted cruisers *Orlando*, *Australia*, etc. The above-mentioned guns are all Hontoria. The secondary battery of rapid-fire and machine guns consists of two 7-centimetre (2.76-inch), eight 6-pounder Nordenfeldt, two 11-millimetre (musket calibre, 0.433-inch) Nordenfeldt, and eight Hotchkiss 37-millimetre revolving cannon. The turret armor is 10.5 inches thick, and the conning-tower 12 inches. The engines are inverted, vertical, triple-expansion, driving twin-screws. The cylinders are 42, 62, and 92 inches by 46 inches stroke. The main condensers are 10 feet 8 inches long, entirely of brass, and have a total surface of 14,600 square feet. There are four ash-hoisting engines, and means provided for handling ashes with the fire-rooms closed. The ammunition hoists, one forward, one aft, are double, and are fitted with safety-gear to hold up the ammunition in case the hoisting-rope parts or is shot away. A heavy boom or derrick, fitted with steam hoisting-gear, is arranged for hoisting out the boats. The propellers are of bronze, 16 feet 5 inches in diameter and 20 feet 6 inches pitch. Steam is supplied by four double-ended boilers 16 feet 3 inches in diameter, and two single-ended boilers 10 feet 6 inches in diameter and 15 feet 3 inches long, all working at a pressure of 150 pounds. The boilers are placed in two compartments, with coal-bunkers along the sides. The forced-draft and ventilating system consists of nine fans. For ordinary auxiliary use there are two boilers on the protective deck forward, each 8 feet 10 inches long and 7 feet 9 inches in diameter. The grate-surface of the main boilers is 845 square feet, and the heating surface 25,920 square feet. The works of the Sociedad Anónima de los Astilleros del Nervion at Bilboa, where the *Maria Teresa* was built, and where the *Oquendo* and *Viscaya* are still under construction, was not in existence until after the contract for the construction of these vessels was signed. But by the aid of the Palmers, of Jarrow, England, it was rapidly erected into the greatest ship-building and ordnance establishment in Spain.

Austria.

The armored casemate battle-ship *Tegetthoff*, which was launched in 1878, has been undergoing important alterations which add to her qualities as a fighting ship, and increase her speed by two knots. She has now been fitted with six 9.2-inch 35-calibre guns, to train by electric gear. Five 6-inch R. F. guns have been mounted in place of six 9-centimetre bronze guns.

Her secondary battery has also been entirely replaced by modern guns, and her old three masts for sails have been replaced by two military masts, with double fighting tops. The most important change, however, is in her machinery. She was formerly a single-screw ship, with old-fashioned engines, but has now been fitted with twin-screws and modern engines, which give her a speed of 16.2 knots, instead of 14 knots with the old engines.

Japan.

The Japanese navy is as different from the Chinese as are the temperament and habits of the people. The Japanese are naturally military; they love their country; they are proud and progressive

because their pride will not permit them to be behind the rest of the world. The results of their energy are wonderful. In the four decades which have elapsed since the opening of the country they have advanced from isolated, but not somnolent (like that of the Chinese) barbarism, until in many ways they challenge our admiration, and even afford us examples worthy of emulation. Their navy is particularly efficient. They design, build, and run their own ships without foreign aid and with marked success. There are a number of the smaller Occidental powers whose navies are inferior to it in discipline, equipment, and administration. The insular position of the country has tended to the development of the navy, and when, recently, the condition of the national finances rendered a reduction in general expenditure necessary, the naval estimates were allowed in full without being cut down. The present building programme contemplates the production of two battle-ships, one cruiser, and a dispatch-boat. The designs of these vessels have received the approval of the parliament, and the exact amount to be devoted to their construction has been definitely settled. One of the armored battle-ships will probably be built at Elswick, the other armor-clad and the cruiser at Yokosuka, and the dispatch-boat at Onohama.

The following particulars in regard to the protected-cruiser *Yoshino* are supplementary to the description given in the October NOTES. The displacement at load-draught is 4150 tons. The protective deck is 4½ inches thick on the slopes amidships and 1¾ inches on the flat. A thick armored conning-tower is located on the after end of the forecastle. The coal capacity is 1000 tons. For determining the speed under natural draft the vessel made a number of runs at various speeds over the measured mile, and the corresponding number of revolutions taken. The revolutions on the sea trial were compared with these results and the speed ascertained. The highest speed attained with forced draft on the measured mile was 23.03 knots, the mean of four runs with and against the tide, and this was accepted as the forced-draft trial. The corresponding horse-power was approximately 15,000. The mean speed on the six-hour natural-draft trial at sea was, as previously stated, 21.6 knots. The battery, given in the former description, consists entirely of rapid-fire guns of the calibres mentioned.

Germany.

By the explosion in the engine-room of the German ironclad *Brandenburg* of a copper steam-pipe, thirty-nine persons were scalded to death, and two of nine other people injured have since died.

The ship was disabled, and was towed to port. It is not accurately known just what did burst, though it is stated as the most likely that it was the steam-pipe.

The *Brandenburg* was launched two years ago, is a twin-screw belted cruiser of 9840 tons displacement and of 10,000 I. H. P. She is 345 feet long by 64 feet beam, and draws 24½ feet. Her speed is intended to be 16 knots.

At the time of the explosion she was proceeding to the trial-ground for a steam trial, and had nearly a full allowed pressure of steam.

Argentine Republic.

On the 28th of December last a twin-screw torpedo-cruiser, named the *Patria*, was launched in England by Laird Brothers for the Argentine Republic. Unlike most of her type, she has a flush spar-deck instead of a poop and forecastle. She is 250 feet long and 30 feet beam, with a displacement of 1183 tons. She has two sets of triple-expansion engines of 1250 H. P. each, steel boilers, four in number, working at a pressure of 155 pounds, and manganese bronze propellers. Her battery consists of two 4.7-inch R. F., four 8-pounders, two 3-pounders, and one bow and one midships revolving torpedo-tube.

Russia.

It is proposed to carry out an experiment in which 150,000 cavalry will take part this spring, to endeavor to show that cavalry and horse artillery can be used on foot if necessary, carry out an independent mission, even fight a battle, without the assistance of infantry.

Brazil.

The double-turreted monitor *Javary* was lost in Rio de Janeiro harbor last November. The meagre and rather unreliable reports state that a large leak apparently developed forward (whether from carelessness or the effect of the enemy's fire is not mentioned,—if it was known). The vessel settled slowly by the head, listed rapidly to starboard after the deck became awash at the stem, then suddenly turned completely over and sank bottom up.

Chile.

The high-speed protected cruiser *Blanco Encalada* was launched at the Elswick Works, Newcastle, England, September 9, 1893. Her dimensions are: Length, 370 feet; beam, 46 feet 6 inches; mean draught, 18 feet 6 inches; displacement, 4400 tons. The anticipated indicated horse-power with forced draft is 14,500, corresponding speed 22.5 knots. The battery consists of two 8-inch guns, ten 6-inch rapid-fire guns, twelve 3-pounder rapid-fire guns, and twelve 1-pounder rapid-firers. Five torpedo-tubes are fitted.

China.

The new docks which have been constructed at the Fu-Chau Arsenal were completed in August, 1893. They are large enough to hold any of the vessels of the Chinese fleet, so that in future they will not have to go to Hong-Kong or Shanghai for the purpose.

It is said that the real reason that no vessels of the Chinese navy were sent to Bangkok was that none were in a fit condition to send. It is a well-known fact that the Chinese navy is formidable only on paper. The system of administration is such that if the officers were anything short of angels, it could not fail to be wholly inefficient. It is needless to say that the angelic qualities are lacking.

United States.

The designs for the new gunboats, *Nos. 7*, *8*, and *9*, have been completed, and the bids advertised for received. That of the Newport News Dry-Dock and Ship-Building Company is much the lowest, and will probably be accepted for all three. It is: for *No. 7*, $290,000; for *Nos. 8* and *9*, $306,000 each; for all three, $280,000 each. These prices are remarkably low, much less than any previous bids for similar work, and less than such vessels would cost built in England. If the Newport News Company are able to build the vessels for this price and make a reasonable profit on their work, they will have solved the problem of cheap ship-building in the United States, and will be able to compete in price with any builders in the world.

These gunboats are not all three alike. *No. 7* is of the ordinary cruising type, but still of moderate draught. *Nos. 8* and *9* are light-draught vessels especially designed for river-work in China and South America.

The dimensions of *No. 7* are: Length over all, 233 feet 9 inches; on load water-line, 220 feet; beam at load water-line, 36 feet; and the displacement is 1260 tons on a mean draught of 11 feet. The coefficient of fineness is 0.506. The free-board forward is 17 feet 11 inches, aft 16 feet 2 inches.

The hull is of steel, not sheathed, with double bottom and close water-tight subdivision at the water-line. The rig is that of a two-masted schooner with a very moderate spread of canvas. The spar-deck is flush without poop or forecastle; the accommodation for officers and crew is therefore excellent. A water-tight deck is worked just below the water-line, and all the vitals of the ship are placed below it. The coal-bunkers, above and below this deck, are arranged to give the greatest practical protection. The cabin is located on the gun-deck aft. Forward of this is a T-shaped ward-room, with 8 state-rooms along the shank of the T, which extends aft from the cross which forms the mess-room. Four more state-rooms are on the berth-deck below. Forward of these latter state-rooms are compartments resembling those usually fitted as junior officers' quarters, but which, in this vessel, are intended for the senior petty officers. Instead of bunks, folding berths, like those in a sleeping-car, will be fitted. The complement is 11 officers, 129 sailors and firemen, and 10 marines, a total of 150. The battery consists of eight 4-inch, four 6-pounders, two

1-pounders,—all rapid-fire guns,—and two Gatlings. There will be one above-water torpedo-tube in the stem. Four 4-inch guns will be mounted on the spar-deck, one each side forward and aft; the remaining ones in sponsons on the gun-deck, two each side. Those on the spar-deck will be protected by shields on the carriages; the gun deck sponsons will be 2½ inches thick. The engines will be twin-screw, quadruple-expansion, with cylinders 11, 17, 24, and 34 inches in diameter by 18 inches stroke. The designed horse-power is 1750, with a piston speed of 900 feet. For full-power steaming the design is to run as a quadruple-expansion engine with steam from the main boilers to the high-pressure cylinder, steam from the auxiliary boilers going into the steam-chest of the first intermediate cylinder. For steaming at low-power, the engine is intended to run triple-expansion, there being a disconnecting coupling by which the low-pressure cylinders can be thrown out, and the exhaust-pipes can be properly arranged to complete the design. The boilers are in two groups, the forward or main boilers being of the tubulous or sectional type, and designed for a working pressure of 250 pounds. They contain about 100 square feet of grate, and about 4000 square feet of heating surface. The after, or auxiliary, boilers are return-tubular, two in number, and designed for a pressure of 160 pounds. The steam-pipes of the two groups of boilers are so arranged that both may work at the same pressure (up to 160 pounds) on the main steam-pipe to the high-pressure cylinders. There is one condenser for each main engine, each with its own circulating pump, to which is attached a vertical auxiliary air-pump, so that each condenser may be used in port for auxiliary purposes. The main air-pumps are of the vertical-bucket type, one for each engine, each worked from the cross-head of the second intermediate cylinder. The valves for the h. p. and first i. p. cylinders are of the piston type, the other two double-ported slides, all worked by Stevenson link-motion. The cylindrical boilers are 7 feet 8 inches in diameter and 9 feet 10 inches long, each with one corrugated furnace flue of 40 inches internal diameter, the total grate-surface of these boilers being 42, and the heating surface 1358 square feet. The type of boilers and their size has been somewhat restricted in this vessel on account of her comparatively light draught, and from the fact that she has a double bottom. Forced draft on the closed ash-pit system is fitted. The coal-supply is 380 tons, of which 150 tons can be carried at load-draught. There will be the usual evaporating, distilling, and refrigerating machinery, workshop, dynamo, ventilating, capstan, and steering engines, ash-hoist, and ash-ejector of the See pattern, the latter being the first to be fitted in any vessel of the navy. The speed to be developed by the vessel, under conditions to be prescribed by the Navy Department, must not be less than an average of 14 knots per hour, maintained successfully for four consecutive hours, during which the air-pressure in the ash-pits of the return fire-tubular boilers shall not exceed that equal to 1 inch of water, and in the ash-pits of the tubulous boilers a pressure of 2 inches of water; and for speed developed and maintained above 14 knots per hour the contractors will receive a premium at the rate of $20,000 per knot, while if the speed falls below 14 knots, a penalty at the same rate will be exacted. If the average speed falls below 13 knots the vessel will be rejected.

Gunboats *Nos. 8* and *9* are intended for river service, and their exceptionally light draught has restricted the designers both of hull and machinery to such forms as the draught will admit of. The hull data are as follows: Length over all, 252 feet; on load water-line, 250 feet; beam at load water-line, 40 feet; mean draught, 8 feet 10 inches; displacement at this draught, 1313 tons; co-efficient of fineness, 0.517; freeboard at bow, 19 feet 9 inches, at the stern, 11 feet 2 inches. The contract speed is 13 knots, and the premiums and penalties the same as for *No. 7*. In appearance *No. 8* and *No. 9* differ greatly from *No. 7*. For about two-thirds of the length from the bow the sides are carried up to form another deck. The after third of the vessel is thus one deck lower than the remainder. Instead of a schooner-rig, one military

mast is fitted a little forward of the smoke-stack. This mast carries two military tops, both below the level of the top of the tall stack, in order to avoid smoke. Just below the lower top is a bullet-proof lookout station. The battery is the same as for *No. 7*, but the arrangement is different. Two of the 4-inch guns are mounted on the forecastle, the remainder in recessed ports on the gun-deck, the curved fronts of which are armored to a thickness of 2½ inches. The forecastle guns and all smaller pieces will be protected by shields. The total coal capacity is 275 tons, of which 100 tons will be carried at load-draught. The engines will be twin-screw, vertical, triple-expansion, with cylinders 14½, 22, and 33¾ inches diameter by 18 inches stroke. The designed horse-power is 1600, piston speed 850 feet, and boiler-pressure 180 pounds. The boilers, six in number, are of the same size and type as the auxiliary boilers of *No. 7*. They are used, as the particular service on which these vessels are to be employed requires boilers which can be readily cleaned and scaled. They will be placed in two water-tight compartments, but with only one smoke-stack. The grate-surface will be 120 square feet, and the heating surface 4074. The forced draft will be on the closed fire-room system.

A secondary test of the *Monadnock's* 11½-inch nickel-steel curved plate, made by the Carnegie Steel Company, was made February 10.

The gun used was an 8-inch B. L. R., of 30 calibres on gravity return mount.

The dimensions of the plate were: Length on curved surface, 19 feet 3¾ inches; width, 5 feet 2 inches; thickness, 11½ inches; weight, 19.8 tons. Distance between gun and plate, 320 feet; line of fire normal to centre of plate, 44 inches from left end.

Round 1.—Charge, 72¼ pounds; striking velocity, 1534 f. s.; striking energy, 4083 foot-tons; ratio of energy compared with that necessary to perforate wrought iron of same thickness, 1.29; angle of fire, about 9 degrees with the normal at point of impact. Carpenter 8-inch A. P. projectile, weighing 250 pounds, struck the plate, penetrated 12.7 inches in line of fire, point getting in 12.3 inches from face of plate, and broke up, pieces scattering to considerable distances. The fringe was 3½ inches high on right side of impact, 1½ inches high on left side. Bulge, 28 inches in diameter. Diameter of hole in plate at point of impact, 7.903 inches. Plate was uncracked.

Round 2.—Charge, 98½ pounds; striking velocity, 1786 f. s.; striking energy, 5535 foot-tons; ratio of energy to that just necessary to penetrate wrought iron of same thickness, 1.75; line of fire made an angle of 3 degrees with the normal at point of impact. A Carpenter A. P. shell was used, and penetrated plate and about 24 inches of backing, and struck with base in 10.4 inches from face of plate fringe.

The Driggs Ordnance Company, of Washington, have brought out a new machine gun invented by J. G. Accles. In a general way this gun resembles the Gatling-gun, with a number of important features changed. By a simple clutch at the side the firing mechanism can be thrown in or out of gear instantaneously, and, secondly, the gunner can easily throw a continuous stream of bullets, or fire shots singly, at the rate of 400 shots per minute, the crank being turned steadily all the time. The gun may be mounted on all types of shore and naval mountings. It may be fired by electricity by the use of a small motor, 1000 shots per minute having been recently fired in this way.

HEAVY GUNS.

With regard to the three guns landed from the *Colossus*, the Malta correspondent of the *Western Morning News* (British) states that one is decidedly cracked, and in the case of the other two it is doubtful whether they are "scored" or "cracked." In any case, they are sufficiently "scored" to be of no use until relined, and there are no spare guns of this size now remaining in store at the port.

According to the *Militar-Wochenblatt* the construction of new guns of the latest approved patterns is being most

actively pushed in Russia. Last year a new field gun and a new fortress or coast-defense gun were introduced, and two further new guns have since been adopted for the siege artillery,—viz., an 8-inch light howitzer and a 9-inch mortar. The first named is built up of an inner tube extending to the anterior wedge-surface, and a mantle (jacket) inclosing about two-thirds of its length and fastened to it by a coil, the whole being strengthened with three more coils round the mantle, the hindmost and strongest of which carries the trunnions, and a further coil in front of the mantle. The total length of bore is 11 feet 4 inches, and that of the rifled part 10 feet, or 15 calibres. It has 46 parabolic progressive rifling-grooves which have a pitch of 3 degrees 42 minutes near the chamber, and of 8 degrees 56 minutes at the muzzle, corresponding to a length of groove equal to 20 calibres. The fermeture resembles the German cylindro-prismatic wedge pattern, only that the posterior surface of the wedge is not semi-cylindrical, but forms a rather flat cylinder-segment. It has a fermeture nut, removable crank, and a folding-down handle for extracting the wedge, the travel of which is limited by a check-chain. The wedge is perforated with an axial vent, the packing consisting of a Broadwell ring. The mortar is similarly constructed, but the mantle is fitted with two coils only, one of which bears the trunnions. The total length of bore is 5 feet 9 inches, that of the rifled part 3 feet 10 inches, or 5.14 calibres. It has 52 grooves, the pitch of the rifling being 5 degrees 16 minutes near the chamber, and 11 degrees 15 minutes at the muzzle. Its weight is 34¾ hundred-weight, its maximum charge 9½ pounds of coarse-grained powder. Both guns fire ordinary cast-iron howitzer shells of 2½ calibres' length, steel bursting howitzer shells of 3¼ calibres, and steel ditto of 4½ calibres, with a charge of pyroxiline, the 8-inch guns also firing steel bottom-chamber shrapnels of 3 calibres. The bursting shells with powder charge have a rather massive cast-iron screwed-on and riveted head, provided with longitudinal and transversal notches, so as to insure a large number of fragments; the pyroxiline howitzer shells are all steel, with very thin walls, even in the head, and the bottom is screwed in. The weight of the powder-charged howitzer shell for the 8-inch gun is 1¾ hundred-weight, the bursting charge weighing 20½ pounds, that of the pyroxiline shell for the mortar with charge 2¾ hundred-weight, the explosive charge weighing about 89 pounds. As is the case with all new Russian projectiles, the shells are guided by a copper guide-band with 3 grooves, the centring in the rifled chamber-space being effected by a boss-like protuberance of the iron or steel core.

RAPID-FIRE, MACHINE, AND FIELD GUNS.

La France Militaire claims that Colonel de Bange and his colleague Captain Picard have carried out experiments at the Cail Gun-Factory which prove that they have successfully solved the problem of checking the recoil of field guns. It is stated that a species of spade under the trail bores into the ground on the discharge of the gun, and actuates a system of hydraulic brakes provided with feathers producing such a reaction that the carriage returns to the firing position. The device has worked well with quick-firing guns.—*Broad Arrow.*

The point raised by Mr. Arnold-Forster, during a debate in the House of Commons in regard to the armament of our field artillery, was by no means devoid of interest, although it was a little difficult to understand definitely what he was aiming at, as horse-artillery guns, field-battery guns, and howitzer batteries are separate and distinct matters, or should be so. It is satisfactory, however, to know that there is a prospect of the early adoption of a suitable gun for our horse batteries. Unquestionably the ordinary 12-pounder, with its patent brakes, recoil cylinder, and numerous encumbrances, although excellent for field batteries, necessitates far too heavy a load behind a team of horse artillery; such a load should never exceed 36 or 38 hundred-weight; at present it is 40 hundred-weight 3 quarters 21 pounds. The shortened 12-pounder of 6 hundred-weight, which has been constructed for the employment of cordite,

appears to answer very well, and we assume that some modification of it will be the weapon finally adopted. But the howitzer question, also raised by Mr. Forster, is equally important. It involves a charge of grave neglect against our ordnance officials that, whilst every country in Europe has seen the importance of associating light howitzer batteries with the the armament of field artillery, we have made no single effort in this direction. Russia, Germany, and Austria have all their field howitzers, and the Krupp firm at Essen has recently turned out a most valuable weapon for this purpose, which has already been introduced into more than one corps of European artillery. It is a 12-centimetre (4.75-inch) howitzer, light and short, and throws a projectile of 36 kilos (79 pounds), the latter almost projecting from the muzzle of the gun when it is loaded. It is fired at almost any angle of elevation required with full, reduced, and low charges, according to elevation. The carriage is provided with a most ingenious self-acting steel brake which grips the axle automatically on recoil. We understand that the carriage does not run back more than three metres at the most, this recoil not being excessive for so powerful a gun. The effect of such a 12-centimetre howitzer upon field-works would be awful.—*Army and Navy Gazette* (London).

SMALL-ARMS AND EQUIPMENTS.

The Turkish Minister of War has signed a contract with the Mauser Rifle-Factory for the supply of 155,000 Mauser rifles with a calibre of 7.65 millimetres, to be delivered before February, 1895. This order insures uniformity in the armament of the Turkish infantry.

The British cavalry in India are to receive a 0.303 carbine, without magazine attachment, single-loader, being judged sufficient for all purposes when dismounted men have to open fire. The present carbines, Martini-Henry, mark 2, are to be converted, the barrels being replaced by those of 0.303 calibre, having the chamber and rifling the same as those of the Lee-Metford rifle carbine. It will be just under 3 feet 2 inches in length, and weighs 6 pounds 12 ounces.

Colonel Rhodes, chief of staff of the Uganda Mission, gives an account of his experience with the Lee-Metford rifle in hunting big game. He says, "The Lee-Metford has shot one rhinoceros, six zebra, six hartebeest, two waterbuck, and a lot of antelope. It is really an excellent weapon, and does not skin your nose and cut your fingers to pieces like these eight-bores and 0.577." Colonel Rhodes was knocked over by his eight-bore, and the hammer cut the bridge of his nose open, and most of the others go about with their fingers damaged.

GUNPOWDER AND EXPLOSIVES.

A discussion of the effect of the use of smokeless powder on tactics will be given in the "Miscellaneous Military Notes" next month.

The following note from *Engineering* is derived from a letter of Sir A. Noble to the London *Times*, and gives some very interesting particulars as to cordite and other smokeless powders: "The ballistic results, obtained with maximum pressures of 16 to 17 atmospheres (*sic*,—possibly tons per square inch is intended) in a 6-inch gun firing a 100-pound projectile, were as follows:

Length of gun in calibres	40	50	75	100
	Ft. sec.	Ft. sec.	Ft. sec.	Ft. sec.
With cordite of 0.4-inch diameter .	2794	2940	3166	3284
With cordite of 0.3-inch diameter .	2469	2619	2811	2905
With ballistite of 0.3-inch cubes .	2416	2587	2713	2806
With French B. N. for 6-inch gun .	2249	2360	2536	2616
With prismatic amide	2218	2342	2511	2574

"Experimentally a muzzle velocity of 4980 (3980?) feet per second has been obtained with cordite, though the maximum pressure was greater than is advisable in ordinary practice. Sir A. Noble also states that he has been unable to detonate cordite, even with powerful fulminate of mercury detonators, and this when the temperature of the explosive was first purposely raised to 105° Fahrenheit. This fact is remarkable, as nitro-glycerin and gun-cotton, the two principal constituents of cordite, are both

easily detonated. As regards erosion of the bore of the gun, cordite is slightly more erosive than brown prismatic powder, though this erosion is confined to a shorter length, and is much more uniform. The least erosive of any powder is the prismatic amide powder, which is only one-quarter as erosive as any of the others above."

The manufacture of smokeless powder will be commenced by at least two companies in West Sweden. One of these concerns has already received the government's sanction of their regulations.

A new explosive, which is designed to replace the powder now in use in the German artillery, has been tried, and is said to have given the most satisfactory results. It is stated to be almost smokeless, to give little or no recoil, and very little noise.

Experiments are being made in India to test the destructive action of cordite gases in the Lee-Metford rifle. The introduction of a thick wad into the cartridge has certainly reduced the damage done, which is usually at the point in the barrel where the bullet is "set up" immediately after the explosion of the charge. The wad acts as a sort of cushion for the gas, allowing greater space for expansion, and thus lessening the pressure on the barrel. Over 2000 rounds have been fired from a rifle without any ill-effects being shown, but it is desired to reach double that number, as, on an average, each soldier fires 300 rounds per year. The "life" of a rifle should be 10 years at least, and with careful handling it should last 14 years if not used on a campaign. The Snider, which was originally very strongly constructed, was made to last over 20 years, until the rifling was almost worn out, and now as a breech-loading smooth-bore in the hands of the military police it is still a serviceable weapon. The curious thing about cordite is that in field guns it is less destructive than black powder, except in the matter of the vent, where the gas causes rapid erosion. This is being got over by special appliances, and it is not likely that any new smokeless explosive will be adopted for the British army. India, for the present, will rely upon cordite exported from England.

During the debate in the House of Commons as to the—so-called—"cordite scandal," two important facts were elicited. Mr. Campbell-Bannerman stated that cordite had been authoritatively introduced into the naval and military departments as a "service" propellant, and that it was accepted as such formally. This is the first time that such a fact has been made publicly known, as it was understood that the question as to the introduction of cordite was still *sub judice*. It is rumored now, however, that a proportion of cordite cartridges is to be issued for the use of the Channel squadron as a commencement, although they will not be sent to tropical stations just yet. This looks like business. After the publication of Sir Andrew Noble's pamphlet, upon the recent series of exhaustive trials which he carried out at Elswick, with ordinary pebble powder, amide powder, ballistite, and cordite, there appears to be no reasonable doubt that the latter is a propellant of reliable character, and perfectly under control. The exceptional pressures which it has occasionally developed would appear to have been due to insufficient room for expansion in the powder-chamber, or to imperfect closing of the breech, or sealing of the vent, difficulties which can be got over. The second fact which was elicited was in regard to the "stability of cordite under extreme conditions of cold and heat." After remarking that the reports received by him from India and Canada had been most satisfactory, Mr. Campbell-Bannerman went on to say that "cordite was absolutely unaffected by the heat to 100 degrees, and that there was no difficulty in keeping down the maximum temperature of the magazines" to that condition. That cordite may be kept with impunity in a temperature of 100 degrees we fully believe, as our own observations have shown that it only gets a little more pliable under these circumstances, although, unless we are greatly mistaken, it was Sir Frederick Abel himself who first suggested that tropical heat would be detrimental to it.

But that the magazines of a battle-ship, lying between the stoke-holds, could, when steam is up, be kept down below a temperature of 100 degrees, is a statement which it will require more than the authority of Mr. Campbell-Bannerman to cram down our throats! Had he said 200 he would have been nearer the mark. During the *Calliope's* cruising in the Pacific her magazines, which were fore and aft, and not between the boilers, frequently reached a temperature of 140 degrees. How would it be possible then to reduce the figure to 100 degrees upon such ships as the *Nile* and *Trafalgar?—Army and Navy Gazette.*

Notwithstanding the above very decided statement, there ought to be no difficulty in keeping a magazine at any reasonably cool temperature. Every ship now building is, or should be, fitted with refrigerating apparatus, and the reduction of temperature could, with it, be easily effected. As the temperature of the magazine would be many degrees above that of the receiver of the refrigerating machine, condensation ought only to take place in the latter; but if any moisture should be condensed in the magazine, it could readily be removed by absorbent material frequently renewed. The interior of the magazine ought not to be lined with wood, but thoroughly cork-painted instead. If the exterior could be sheathed with a non-conductor of heat, it would be an advantage. A good coating of cork paint will absolutely prevent deposit of moisture even where moist air is admitted from living spaces to others with a temperature 40° lower. This fact was thoroughly demonstrated on the *Miantonomoh*, in whose turrets everything was so painted. In midwinter the temperature of the interior of the turrets was frequently 40° below that of the turret-chambers, and it occasionally fell to 50° below. But no condensation was ever observed on the cork-painted surfaces, though they were carefully examined. In repainting, too, many coats of metallic paint should not be applied without adding more cork. And in such places as a magazine something of appearance should be sacrificed to efficiency, and the bulkheads left without repainting as long as possible,—of course touching up spots where the paint is knocked off.

In view of the statements quoted above the following may be of interest. The *Army and Navy Gazette* (London) states that the British Admiralty has decided that until further experience has been obtained with cordite charges the new propellant will only be supplied to the vessels of the Channel squadron, the first Reserve squadron, and the port guard-ships. As no change has yet been made in the patterns of cartridge-cases and cartridge-boxes, the magazine stowage will not be affected by the introduction of the new ammunition. The advantage to stowage which will eventually be gained can readily be seen by comparing the weights of the cordite charges with those of the ordinary charges:

Guns.	Cordite Charge.	Brown Powder Charge.
6-inch quick-firing	13 lbs. 4 ozs.	29 lbs. 12 ozs.[1]
4.7-inch "	5 lbs. 7 ozs.	12 lbs.
6-pounder "	7¾ ozs.	15 ozs.
3-pounder "	6⅜ ozs.	15 ozs.

PROJECTILES.

The particulars of the projectile test, made at Sandy Hook in September, and which test was referred to in the November NOTES, are as follows: The lot offered for acceptance consisted of 73 8-inch armor-piercing shell made by the Midvale Company by the Holtzer process. Two shells were selected for test. The test plate was of steel, rolled, oil-tempered, and annealed, and 9 inches thick. The projectiles were 7.99 inches in diameter, 28.2 inches long, and weighed 300 pounds. The powder-charge was 100 pounds, and the velocity at the muzzle (practically the same at the plate) 1625 feet per second. This velocity was estimated to be just sufficient to pierce the plate and backing. Both shells went through the plate without seriously cracking it. The first one also went

[1] This the editor believes to be a mistake. The Armstrong rapid-fire 6-inch gun was designed to use 38 pounds of Chilworth special brown powder. It is possible that the service charge may be less, but he can find no evidence of it.

through the sand butt in rear and was lost. The second was recovered and showed almost imperceptible setting-up, amounting at the maximum to 0.005 of an inch, so that it could have been used again after being fitted with a new rotating band. The Midvale Steel Company is the sole owner of the right to manufacture by the Holtzer process in America, North or South.

MISCELLANEOUS MILITARY NOTES.

According to the *Reichswehr*, the retrenchments effected in the cost of the Spanish army are as follows: By a ministerial decree, the staff of each of the three regiments of marine infantry (chiefly intended for foreign service) was to consist of 1 colonel, 2 lieutenant-colonels, 4 majors, 5 captains, 4 lieutenants, 3 sergeant-majors, 7 sergeants, 2 armorers, and 3 trumpeters, excepting one regiment of two battalions, which was to have 16 commissioned and 15 non-commissioned officers. In addition to these, each of the eight companies was to comprise 1 captain and 4 lieutenants, 1 sergeant-major, 4 sergeants, and 10 corporals, with 120 privates. By a later decree this organization was altered, for the sake of economy, to the effect that the number of privates in each company was to be reduced to 32, each regiment thus retaining only 256 out of 960 men. However, the large staff of officers was retained undiminished, with the result that 256 privates are now commanded by 26 commissioned and non-commissioned officers.—*Broad Arrow.*

Russia, it is said, proposes to add two new army corps to her already overwhelming military strength, as a balance to the increase in the German army authorized in the army bills, and thus the weight of armaments is to be increased all round. With reference to this point the *Cologne Gazette* points out that the German successes in the War of 1870 were gained by their great superiority in numbers. They won the battle of Wissemberg with 44,000 men and 72 guns, against 25,000 French and 18 guns; at Wörth there were 96,200 Germans with 342 guns, against 36,800 French with 131 guns; at Spicherin there were 38,400 Germans with 120 guns, against 24,000 French with 70 guns; at Sedan 155,000 Germans with 700 guns, against 90,000 French with 408 guns; and at Gravelotte 240,000 Germans and 160,000 French, with the usual preponderance of German artillery. Now, however, things are different. Before the passing of the new German army bills France was numerically about as powerful as Germany; but it was thought by the Germans that France could not go on increasing her numbers any further, and that therefore, if the German army was increased, a predominance would once more be obtained. If, however, Russia, the ally of France, is to reply to Germany's increases of numbers, finality is as far off as ever, and the outlook in the direction of further increases of European armaments becomes appalling.—*Army and Navy Gazette.*

The general annual return of the British army for the year 1892, with abstracts for the years 1873 to 1892 inclusive, has just been issued as a Parliamentary paper. It states that the average effective strength of the regular army, all ranks, during 1892 was 213,540. This total is made up as follows: Household cavalry, 1318; cavalry of the line, 18,387; royal artillery, horse, 3740; field, 14,308; mountain, 1277; garrison, including corps of ordnance engineers, 16,536; royal engineers, 7458; foot guards, 5949; infantry of the line, 133,110; colonial corps, 4386; army service corps, 3492; ordnance store corps, 830; corps of armorers, 317; medical staff corps, 2432. The average strength by ranks was,—officers, 7653; warrant officers, 850; sergeants, 13,331; trumpeters, drummers, and buglers, 3413; rank and file, 188,293. The average total strength of the army at home was 106,115; abroad, 107,425. The effective strength, according to the latest returns received on January 1, 1893, was 217,789; the total on the corresponding date 1892 was 211,590. The scheme of the British war office for home defense includes: 1. A field army consisting of three army corps

complete in all details, and four cavalry brigades. 2. A reserve field army. 3. Local defense garrisons. 4. Unallotted units available for any special service that may be required. The following is an analysis of the strength and composition of the field army mentioned in Category 1:

THREE ARMY CORPS.

	First Army Corps.	Second Army Corps.	Third Army Corps.	Total.
Officers	1,129	1,118	1,118	3,365
Non-commissioned officers and men	32,110	31,847	31,847	95,804
Guns	90	84	84	258
Machine guns	14	14	14	42
Horses and pack-animals	7,416	7,135	7,255	21,806
Vehicles	1,149	1,115	1,142	3,406

FOUR CAVALRY BRIGADES.

	First Brigade.	Second Brigade.	Third Brigade.	Fourth Brigade.	Total.
Officers	125	139	131	131	526
N. C. officers and men	2,155	2,648	2,519	2,519	9,841
Guns	6	6	6	6	24
Machine guns	4	4	4	4	16
Horses	2,238	2,751	2,610	2,610	10,209
Carriages of all sorts	129	144	133	133	539

Adding these numbers together, the total strength of the field army in *personnel*, guns, and wagons is:

Officers	3,891	
N. C. officers and men	105,645	
		109,536
Guns (12-pounder B. L.)		282
Machine guns		58
Vehicles of all sorts		3,945
Horses		32,015

The first and second army corps are composed entirely of regular troops; the infantry of the third army corps are principally militia battalions. The artillery in all three army corps are regular batteries. The reserve field army consists of 32 volunteer infantry field brigades and 79 batteries of volunteer field and position guns.

A new portable scaffold of observation, patented by Mr. R. Bitthorn, architect, of Berlin, was tried at the drill-ground of Moabit, near Berlin, before the Artillery Trial Committee, to the entire satisfaction of the experts present, and the apparatus will probably be adopted for the German artillery. The advantages of this scaffold are that it can be very quickly erected or folded up and taken to pieces; it is most handily arranged and very portable. While the guns are being unlimbered and laid, the scaffold can be erected, which is done in three or four minutes, and the effect of the initial rounds may at once be observed from the stage, which is 36 feet high, and the range corrected accordingly. The apparatus resembles a huge tripod-stand, the legs being represented by three triple telescoping ladders, to which, at the top, an annular platform is hooked. As soon as the stand is erected in position, three men ascend the rungs of the outer ladder, and push out the next three ladders, the stage being raised with them, and, finally, ascending these, they extend the innermost set of ladders. The various ladders are automatically fixed by self-acting drop-levers, and the foot-ends are prevented, by collapsible stops, from penetrating too far into soft ground. The platform, to which a seat is fixed for the observer, may be used by the latter as a table, for making notes, etc. The apparatus can be dismounted with equal facility, and conveyed in several sections, the whole weighing little over 5 hundredweight. The inventor is at present constructing, by order of the general staff, a larger scaffold of the same kind, the ladders to be extensible to a height of 66 feet; but in this case the ladders will be raised and lowered by winches.

Not the least remarkable evidence of the great progress made by the French in the organization of their army is to be found in the official treatise, "Réglement sur le Service de Santé de l'Armée en Campagne." These regulations are marked by a thoroughness and attention to detail which, if carried into effect in war-time, will result in the complete efficiency of their hospital service, and a corresponding diminution of suffering to the sick and wounded. The tactical employment of the ambulance service is most carefully treated, and what is re-

markable is the provision made for its presence with the most advanced troops. Movable field hospitals are pushed well to the front, and it is noticeable that those most favored for this work are of English origin, being the "Tortoise" field hospitals, which from their extreme mobility are specially suitable for such work. In other armies it is usual to keep the hospital corps more in rear. In the American service, with troops on the march, it is not found in any considerable strength for a distance of about five miles from the front. This marked contrast between the French and American systems would point to a need for a more uniform regulation of this most useful organization, which is worthy of the careful study of those interested in and responsible for its humane operations.—*Broad Arrow.*

The *Revue du Cercle Militaire* gives some particulars of the works of fortification on the so-called "Lower Sereth Line" in Roumania. These works are of particular importance, as they will no doubt play an important part in any future Russo-Turkish war, as well as because they are constructed on the latest system of metallic fortification. They were designed by Brialmont and Schumann, who may be considered the most eminent military engineers of this century, and are intended to form a strategical barrier across the only point which hitherto offered a free passage to an invading army in Roumania, and which has been repeatedly used by Russia as a road of advance against Turkey, being a tract of flat country, about forty miles wide, which extends from the left bank of the Danube near Galatz, to the foot of the Carpathians, near Fokshany, and is traversed by the river Sereth. For some years past the Roumanian government has been actively engaged in throwing an almost impregnable line of fortifications, with a strong *tête-de-pont* at Ramolosa, across this gate of invasion from the northeast. The three principal parts of this line of fortifications are the following: The intrenched camp of Fokshany consists of one howitzer group and 15 fortified groups; the total armament comprises 214 portable turrets, with 37-millimetre quick-firing guns, 90 vanishing turrets with 53-millimetre quick-firing guns, 15 armored "domes" with one 12-centimetre Krupp gun and two 12-centimetre mortars each, and 4 Gruson turrets with 12-centimetre rapid-firing howitzers. The *tête-de-pont* of Mamolosa comprises 8 fortified groups or batteries in 2 lines each; the first line of each group consists of 3 outworks with portable turrets for 37-millimetre quick-firing guns, the second line consisted of two connected armored constructions, each holding a 12-centimetre howitzer. The intrenched camp of Galatz has 10 fortified groups in 3 lines each, the first of which is similar to that in the *tête-de-pont;* the second consists of 6 armored constructions for 52-millimetre quick-firing vanishing guns; the third line contains armored positions for two 12-centimetre howitzers each in the first 5 batteries, and 2 howitzers and 1 gun of the same bore in the last 5 batteries. In addition to this formidable line of defense, there is the flank position of Obodesti with 3 howitzer batteries.

Interesting experiments in military cycling have just been made at Moscow under the direction of the commander of the forces of the Moscow district. Small parties, consisting of an officer and three or four men in full marching order, with rifles, etc., set out simultaneously from Vladimir and Yaroslavl to Moscow, and from Moscow to Vladimir. The Vladimir route, of 126½ miles, was done with a full night's rest and frequent stoppages, the best time of the three separate journeys being thirty-four hours in all, and the longest forty-two and a half hours, of which only seventeen were spent in actual riding. The Yaroslavl route of 176½ miles was done in forty-four hours, including two full nights' rest of sixteen hours, and twenty-eight hours' actual riding.—*Army and Navy Journal.*

The London *Daily News* reports that the use of the bicycle for military purposes, after having developed with great rapidity in France, has suddenly received a check, General Loizillon, the Minister of War, having issued an order that the cyclist corps are only to be used on prepared ground. In time of war, he

says, their use, even if no account is taken of the liability of the machines to break, is likely to cause serious miscalculations, and they can only rarely be substituted for men on horseback. The cyclists henceforth, therefore, or until some successor to General Loizillon more favorable to them is appointed, will be reserved, by his instructions, for garrison duty, for the great manœuvres, and in time of war for certain easy communications at the rear of the forces.

Among the innovations tested at the Metz manœuvres was the use of bicycles. The result was most satisfactory. The bicycle service was thoroughly approved by the staff and will be introduced generally. Wheelmen were found especially useful as night couriers. They were armed with revolvers, and a bayonet was attached to each machine. The dispatches were carried in knapsacks on the backs of the riders. The captive balloon having connection by telephone with the ground was found to be an easy means of observing the enemy's strength and movements. The captive balloon has long been used in the German army, but not until this fall has it been so contrived as to be of much practical use on a battle-field.

During the German manœuvres the use of velocipedes is being put to a searching practical test in outpost duty, and carrier-pigeons are being greatly utilized. A balloon battalion is also employed. Bicycles have so far satisfied the military authorities in Belgium, where the first trial was made of them at the manœuvres of 1888, that their more extended use is now contemplated. It is proposed to establish a central cycling school, to which all the regiments will send a certain number of men. At present the cyclists are recruited from among the corporals. About a hundred military cyclists will be attached to the various staffs and regiments. A fixed type of bicycle is to be adopted, so that in case of accident repairs will be easily effected. A cinder track a mile and a quarter in length was made last year at the military school of the carbineers at Wavre, where a cycling section was established by order of the Minister of War in 1890.—*London Daily News.*

According to the *Reichswehr*, an Austrian officer, Mr. A. Jalic, of Graz, has invented a new type of cycle which will be of great interest not only to cyclists in general, but particularly for military purposes, the invention having been made with this special end in view. The machine, which has already been patented, is a bicycle, but can also be converted into a tricycle by the substitution of two hind-wheels. It is said to afford the special advantage of enabling the rider to surmount, with great ease, any obstacle in the shape of logs of wood, furrows, water-rills, etc. Moreover, a speed of thirty-four miles per hour may be attained, thus establishing an entirely new record. The saddle being placed very low and freely suspended, the machine is exceptionally safe. The machine is under consideration at the Austrian War Office. Professor Winter has pronounced an opinion, as an expert, to the effect that the new machine is exceedingly practical, and particularly suited for military purposes in war-time. —*Broad Arrow.*

From the above notes and others that have been published in the UNITED SERVICE, from time to time, it appears that the bicycle has been pretty generally adopted for certain military uses, and if its capabilities and limitations were better understood, its employment would doubtless be more extensive. It is found in the armies of all the great powers except those of Italy and Spain; but then the bicycle is very rarely to be seen in those countries. The Latin races do not seem to have taken to it either in Europe or America. There are probably not over a hundred bicycles in Argentina, not two dozen in Uruguay, and all, or nearly all, of these are owned by Englishmen or Americans (of the United States). The French show their Latin prejudices by their qualified acceptance of it. General Loizillon shows his ignorance of its powers by the reasons assigned for his disapproval of its use in active military operations. Of course good roads are desirable for bicycling,—so are they for artillery and the ammuni-

tion- and baggage-trains. But they are far from a necessity. There are few parts of any civilized country where a bicyclist cannot, in a day, cover at least twice the distance possible to a horseman, unless the latter has a relay of horses. The writer, one of the editors of the NOTES, has frequently, when the roads did not lead in the direction to suit, abandoned them and ridden across country, lifting his wheel over fences, and pursuing a route absolutely impracticable to a horseman. This was in Uruguay, and of course is not possible everywhere. The horseman may, it is true, break down the fences, or leap them when his horse is fresh and they are not too high. But when these fences are stone walls or are of heavy wire, five feet high, with strong posts, it is not so simple; and stone walls are frequent in many parts of the world. In fairly flat countries such as Argentina, our own West, and Northern Europe, the fields are often quite as good riding as the roads,—better after heavy rains, especially with a pneumatic tire. It must be confessed that none of the wheels now on the market are exactly suited to military needs. What is desirable is a wheel with a large tire, not liable to disablement by cut or puncture, of solid construction, as light as is consistent with its other properties, of standard size and model, and built on the American plan, with all parts and fittings made to gauge, so that spare pieces may be carried in the army supply-trains. Repairs will, however, rarely be required. Bycicles are wonderfully tough, especially high-grade machines, and will stand a vast amount of ill-usage. So far as the commercial article is concerned, the cushion-tire wheel probably most nearly approaches the requirements of military service. But a light, hollow, non-collapsible tire of larger size would quickly displace it if such an article can be produced free from the fatal defect of collapse when cut or punctured. Hollow tires stiffened with flat, watch-spring wire, wound as are certain sorts of hose, have been suggested, and something of the sort may prove the solution of the problem. The great advantages of large tires over small ones will never be questioned by those who have ridden both, and the rougher the country, or softer the road, the greater these advantages are.

THE PROPER COLOR FOR TORPEDO-BOATS.

Germany's naval experts have decided that the best color to paint their cruisers and torpedo-boats, in order to make them as difficult of observation as possible, is a kind of dirty buff. They recommend that the whole of the vessels should be uniformly coated with this color, and that nothing on their decks or upper works should contrast with it.

WOODEN SHIPS IN THE NAVY.

The old wooden ships of the navy are gradually being retired from active service. The flag-ship *Lancaster* is now on her last cruise. When relieved by the *Baltimore* she will return to New York and be transformed into a receiving-ship, to take the place of either the *Minnesota* or *Vermont*, which are both in a state of decay. Another ship that will soon follow the *Lancaster* to the graveyard of all old naval vessels is the *Alliance*, now at San José. She will leave in the next few weeks for New York, and is also to serve as a receiving-ship. The *Marion*, *Mohican*, *Adams*, and *Yantic* are still in service, but their days are numbered. The *Yantic* is in the South Atlantic, and will return home shortly to be placed out of commission. She is now on her last cruise. The *Adams* is not good for many more months, and the *Marion* is little better.—*Washington Star*.

Aluminum is gradually coming into extended use. It has been found that no deleterious reaction takes place in flasks made of it and the ordinary liquids usually carried in them. The flasks used in the German army are cased in felt, and the net reduction in weight on the old pattern is 66 per cent. In our navy aluminum is now being used in life-boats for the air-tanks and for minor fittings.

L. S. VAN DUZER,
Lieutenant U.S.N.
PHILIP ANDREWS,
Ensign U.S.N.

SERVICE SALAD.

Mobilization for Home Defense.[1]

WEDNESDAY, June 21, 1893.

GENERAL the Right Hon. Sir Redvers H. Buller, V.C., K.C.B., K.C.M.G., Adjutant-General to the Forces, in the chair.

Mobilization for Home Defense.

In dealing with this important subject I wish to define my position clearly. The object of this paper is not to advocate any cherished views of my own, neither is it to attack the views of others; it is simply an effort to attract something more than passing attention to the official regulations and orders on which our authorized schemes of mobilization for home defense are based.

Organization of the Army.

The troops at our disposal within the United Kingdom, excluding depots, are,—

Regulars.—Twenty-one cavalry regiments; nine batteries horse artillery; thirty-eight batteries field artillery; twenty companies garrison artillery; twenty-seven companies Royal Engineers; seventy-two battalions infantry; thirty-eight companies Army Service Corps.

Militia.—Thirty-two regiments artillery; ten corps engineers; one hundred and twenty-eight battalions infantry.

Volunteers.—Sixty-seven regiments artillery; twenty-eight corps engineers; two hundred and twelve battalions infantry.

Yeomanry.—Thirty-nine regiments.

Volunteers, Light Horse.—Two regiments.

In addition to the above there are certain remount companies, the nuclei of ammunition columns, the army medical staff, the Ordnance Store Corps, etc., which have not been enumerated, but which will be found duly accounted for in the detailed tables.

For bringing up our regular forces to war establishment we have an army reserve of seventy-six thousand five hundred trained soldiers, according to the latest returns. . . .

CAVALRY.	First Brigade.	Second Brigade.	Third Brigade.	Fourth Brigade.	Total.
Officers	125	139	131	131	526
Warrant officers, non-commissioned officers, and men	2,155	2,648	2,519	2,519	9,841
Guns	6	6	6	6	24
Machine guns	4	4	4	4	16
Horses	2,238	2,751	2,610	2,610	10,209
Carriages of all sorts	129	144	133	133	539

Now, with regard to the organization of our forces for service at home. Category I. is the field army, which, as already stated, consists of three army corps. . . .

With regard to the infantry, each infantry brigade consists of four battalions (each of twenty-nine officers and

[1] Extracts from a lecture on "Mobilization for Home Defense." By Major F. G. Stone, R. A., Brigade Major S. E. District. Published in *Journal of the Royal United Service Institution*, October 15, 1893.

nine hundred and seventy-one warrant officers, non-commissioned officers, and men); two machine guns; one company Army Service Corps; one bearer company.

Total (each infantry brigade), one hundred and thirty officers, four thousand one hundred and thirteen warrant and non-commissioned officers and men.

Each infantry division consists of two infantry brigades, as above; one squadron cavalry; three batteries field artillery; one divisional ammunition column; one field company Royal Engineers; one company Army Service Corps; one field hospital. Total, three hundred and twenty-three officers, nine thousand four hundred and sixty warrant and non-commissioned officers and men, eighteen guns, four machine guns, sixteen hundred and forty-one horses and pack-animals, and two hundred and seventy-one vehicles of all sorts.

The normal constitution of an army corps is three infantry divisions as above; together with one squadron of cavalry, two batteries horse artillery, three batteries field artillery, one field company Royal Engineers, one pontoon troop, one field park, one-half telegraph battalion, one battalion with machine gun section, one company army signalers, one company Army Service Corps.

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We now come to Category II., which I have termed the "Reserve Field Army." . . .

The troops composing this reserve field army are as follows:

Twenty-two infantry volunteer field brigades, thirty-two artillery volunteer corps, comprising thirty-seven batteries of 16-pounders R. M. L. (four guns), twelve batteries of 20-pounders R. M. L. (four guns), thirty batteries of 40-pounders R. B. L. (four guns). In all seventy-nine batteries with three hundred and sixteen guns.

The places of concentration of the troops are arranged with a view to certain strategical combinations, and are notified to all concerned.

The forces composing garrisons and troops for local defense are placed at the disposal of general officers commanding districts, according to local requirements, and are dealt with in the local schemes of defense.

These schemes of defense may be briefly described as the organization of the district for a state of war, and when the arrangements for the mobilization of the troops allotted for its defense are completed, the officer commanding every unit will know exactly where he will have to go, the nature of his duties, and the barracks, camp, or billets which his unit will occupy. The arrangements for all departmental services are cut and dry, and, as in the case of mobilization of the field army, every staff, departmental, and regimental officer will know exactly what to do when he receives the simple order to "mobilize;" if he does not, it is easy to ask for explanations and clear up difficulties in peace-time, and those who frame mobilization regulations and schemes of defense are only

	First Army Corps.	Second Army Corps.	Third Army Corps.	Total.
Officers	1,129	1,118	1,118	3,365
Warrant officers, non-commissioned officers, and men	32,110	31,847	31,847	95,804
Guns	90	84	84	258
Machine guns	14	14	14	42
Horses and pack-animals	7,416	7,135	7,255	21,806
Vehicles	1,149	1,115	1,142	3,406

Adding the numbers already given for the four cavalry brigades, we arrive at the following total in *personnel* and guns for the three army corps and four cavalry brigades:

Officers	3,491	
Warrant officers, non-commissioned officers, and men	105,645	
		109,536
Guns, 12-pounder R. B. L.		282
Machine guns		58

too glad to have any apparent difficulties pointed out, so that they may at once be cleared away.

The general plan on which the defense schemes in some of the larger districts, comprising a considerable stretch of coast-line, are based is to provide strong garrisons for the fortress and defensive works, and small mobile field forces for re-enforcing threatened points, preventing landings at undefended portions of the coast, opposing raids, harassing the enemy's base or line of communications, and thus preventing him from having an absolutely free hand in the more serious engagements with the field army, which must actually decide the fate of the empire. It is of importance to note in this connection that many distinguished officers hold the view that one of the most probable plans of invasion is to attempt a landing in small force at several points, and to follow it up by an invasion in force along one or more lines of advance, according to the initial advantages and freedom from attack which the various landing places offer at the outset of the operations. . . .

Scheme of Defense for the United Kingdom.

The principles which guided the framers of this scheme of defense are based on the following postulates:

1. That an invader's objective is the capital and metropolis, and that until London is taken no invasion can be considered entirely successful.

2. That it is essential to prevent an invader from seizing any important fortified points or commercial harbors which would give him an initial advantage.

3. That after having due regard to 2, our forces must not be frittered away by extending them in a long chain of guard-posts all along the coast with the idea—impossible to carry out—of preventing a landing at any point; but that our forces must be concentrated and mobile, and capable of striking a decisive blow wherever and whenever the invader can be met to the best advantage, *after* a landing has been effected.

The soundness of the strategical conception of the question is generally admitted by military men, but the lay mind undoubtedly requires a little education on the third point in order to prevent the risk of unreasoning panic at a critical juncture, which may quite possibly compel the military authorities to some serious false step in deference to the fiat of uneducated public opinion.

The press will have a serious responsibility if ever invasion becomes a reality; and it is to be hoped that it will remember that though an English country may be overrun by the invader without opposition, any apparent inaction of the military authorities in the local centre of disturbance is only a necessary part of a comprehensive plan for striking a single crushing blow at the enemy under more favorable circumstances elsewhere.

Anything like local panics is much to be deprecated; the country may rest assured that if the army is given a free hand under its appointed leaders, and the strings not pulled by local agitators or impatient politicians, the result is a foregone conclusion. It is one thing for an enemy to land in a country like this, it is a totally different thing to overcome the resistance to be met with after landing, and to retire gracefully with the laurels of victory. Napoleon led an army to Moscow, but he only brought a few hundred men back to France. . . .

Equipment for Mobilization.

1. *Personal Outfit.*—The clothing and necessaries for reservists are kept at Pimlico, and will, on mobilization, be dispatched to the various places at which the reservists are to join, as given in Appendix D of the "Mobilization Regulations;" the consignments will be sent off so as to arrive before the reservists join, and no demands on the clothing department will be required. The amount of clothing and necessaries to be sent will be based on the total number of reservists to join at each place.

2. The first regimental equipment of the unit, which consists of cooking utensils, butchery implements, harness and saddlery, intrenching tools, etc., and the vehicles in which these are carried.

3. The second regimental equipment of the unit, which consists of the mobilization supply of ammunition and vehicles in which it is carried, supply-

wagons, ambulance-wagons, and water-carts. . . .

Horses.—The horses required for the mobilization of each unit will be collected at fixed horse centres by the inspector-general of remounts, and will be sent for, under his orders, by the units concerned, in accordance with the arrangements given in the mobilization tables.

Places connected with the Mobilization of Units.

It is well at this point to get clearly into our heads exactly what part the various places mentioned actually play in the mobilization of the units; a glance at the following table will make this clear.

1.	2.	3.	4.	5.
Place where reservists join and receive clothing and necessaries; usually the depot.	Peace station or place of mobilization where personal and first regimental equipment is kept.	Place where second regimental equipment is kept.	Centre from which horses are to be drawn.	Place of concentration notified to, or ordered by, general officers commanding districts, etc.

Columns 1, 2, 3, 4 are filled in in the published tables; column 5 is confidential. . . .

Reservists.

The following is the procedure for making up units to war strength:

On receipt of the order to mobilize, all officers paying reservists (for list of officers paying reservists, see "Mobilization Regulations," p. 32) will send each army reserve man in their payments a notice to join his depot at once, accompanied by a p. o. for three shillings and the necessary railway and passage warrants.

In the mean time the officer commanding the reservists (for officers commanding depots and regimental districts, see "Mobilization Regulations," p. 30) will have arranged with local authorities for posting placards (A. F. D. 427 or D. 451) in all conspicuous places calling out the reserves; he will also have arranged for the receipt and care of clothing and necessaries from Pimlico, and for the accommodation, medical inspection, and clothing of reservists as they join.

The officer commanding reservists receives from the officer paying reservists the documents and A. F. O. 1811 (statement of accounts on transfer) for each man; he is required to settle up with each man for his reserve pay to the day preceding his reporting himself, and ascertain whether he is married. If the fact of his marriage has not been recorded in his documents, the man will make a statutory declaration, which will be passed to the officer paying reservists in order that the necessary arrangements may be made for issuing the separation allowance laid down in the "Allowance Regulations," paragraph 93.

It is to be observed that the "Allowance Regulations" do not appear to contemplate active service at home, inasmuch as the paragraph quoted seems to presuppose that barrack accommodation will be available. This paragraph requires to be modeled in the same form as paragraph 94, which refers to service abroad, and specially provides for the case of families not accommodated in barracks at nearly double rates,—viz., eight pence a day for the wife and two pence a day for each girl under sixteen or boy under fourteen years of age.

As soon as the reservists are clothed and supplied with necessaries, they are to be dispatched in suitable parties under an officer or non-commissioned officer to their units.

The officer commanding reservists is kept acquainted with the requirements of the units, in his administrative sphere, by means of a return rendered on the 15th of June and the 15th of December in each year, showing the numbers of each rank, exclusive of officers, required

to complete the war establishment (home service) after deducting,—

a. Those who are not fit for service for home defense.

b. Those required for special services hereafter enumerated.

This information is brought up to date by officers commanding units telegraphing latest requirements, after completing the medical inspection of their units.

The reservists, having joined their units, receive their arms and accoutrements, and the mobilization of the unit as regards men is completed.

Before leaving the reservists, it is interesting to note that they have been called out on three occasions, viz., in 1878, 1882, and 1885, and on none of these occasions did the number of absentees, not satisfactorily accounted for, exceed two per cent.

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Devolution of Mobilization.

We now come to a part of our national defense scheme where the energy and attention to regulations of individuals comes into prominence, and it is above all things necessary in this connection for us to bear steadily in mind the serious purpose for which we, as soldiers, "live and move and have our being;" drills, parades, manœuvres, gun-practice, are all merely means to an end; that end is, in the last resort, the defense of our country. Let this thought be ever present with us, not as an empty sentiment, but as a practical working factor in our military organization. Nothing should be left to the last moment which can by any possibility be done in peace-time. If we fail to organize in peace, rest assured that we shall fail to extemporize in war.

Our military organization and mobilization scheme for home defense is practically complete; the O. C. units know what the *unit* has to do; it rests with them that the unit is prepared to do what is required of it. This can only be the case if the component parts of the unit have themselves been organized in peace-time for mobilization. Such organization embraces a field too wide to cover in this lecture, but the following points may be noted:

1. Actual mustering of the personal and first regimental equipments, and, where possible, of the second regimental equipment, also by the O. C., the unit, and thoroughly acquainting officers and non-commissioned officers with the lists of stores, and the stores themselves, together with the method of packing them, etc., as laid down in the "Field Army Establishments (Home Defense)," and the hand-books for field service for each branch of the service.

In the horse and field artillery, "the battery station equipment will be packed, horsed, and taken out once a quarter, to insure its being kept in serviceable condition."

2. Keeping lists of officers and men, for drawing horses and second regimental equipment, mounted infantry, machine-gun sections, ammunition columns, bearer companies, colonial re-enforcements for garrison artillery, etc., so that at any moment the necessary detail could be detached to its special duty.

3. For troops allotted to garrisons which have an opportunity of exercising in conformity with the local defense scheme, a thorough knowledge of locality and personal acquaintance with the administrative and executive work which will have to be carried out in connection with their own unit or command.

4. Careful training and systematic detail of transport officers for regimental transport of units allotted to field army; practical acquaintance with fitting harness, management of convoys, packing baggage, etc.

5. In the case of volunteers, clear and concise standing orders as to reliefs, assembly of first relief, clothing and equipment to be carried, rations, ammunition, etc., and a thorough comprehension by every individual of what he is to do on receipt of a telegram to mobilize.

It is needless to instance further examples of what may be termed "mobilization within the unit." There is plenty of evidence that the responsibility of O. C. units is fully realized in many instances, but the subject is a new one, and it is only now that it has really assumed tangible form; it is necessary to remember that although it may be distinctly the duty of the ordnance store department to have certain stores for certain

units, it is quite as distinctly to the interest of the unit to see that the stores are actually available when required. . . .

The ordnance store department is responsible for the correct storage of the mobilization equipment, and is practically "care-taker" for it. It is not laid down that this equipment should be inspected by O. C. units, but there is nothing to prevent the G. O. C. a district ordering such an inspection or "muster" of mobilization equipment for every unit in his command; neither is there anything to prevent the O. C., a unit at any time, from intimating to the S. O. S. O. that he wishes to inspect, muster, or draw a portion or the whole of the mobilization equipment of his unit for practice or instruction. The O. S. D. and the O. C. the unit should be in touch with each other; there are no conflicting interests to prevent a good understanding. . . .

Mobilization of Militia.

. . . The printed lists of ordnance stores show exactly what equipment is held on corps charge, and what has to be drawn from store in each case. Militia reservists join their militia units at their own head-quarters, and the mobilization of the men proceeds practically on the same lines as the assembling for annual training. The medical inspection has to be carried out as already laid down for regular units; should the numbers called up and found fit for service exceed the establishment of the unit, the instructions of the O. C., the regimental district will be asked for as to the disposal of the surplus.

Mobilization of Volunteers.

. . . There are at present no mobilization regulations published to meet the case of the volunteers, but the subject has, generally speaking, been dealt with under the various local defense schemes in accordance with instructions received from the Horse Guards from time to time, and based on the "Volunteer Regulations." . . .

In every corps the standing orders should provide for the assembly of the first relief at the corps head-quarters, the provision and inspection of the necessary equipment, and the dispatch of the relief to the place of concentration or garrison by rail or otherwise.

The order to mobilize will be either accompanied or followed by instructions as to subsequent concentration, together with the necessary route for the journey.

"Mobilization within the unit," already alluded to, is of paramount importance to volunteers; nothing should be left to the last moment, but every detail of organization for service should be fully worked out in peace.

It is considered that volunteer corps should be mobilized and ready to proceed to their garrisons or places of concentration within from twenty-four to forty-eight hours of the receipt of the order.

There is one point which requires constant attention on the part of officers commanding volunteer units, and that is the close assimilation of the peace interior economy to that of war.

Pitching and striking camp, drawing barrack and camp equipment, cooking, messing, providing batmen and grooms, all these matters should receive attention at peace training, and every opportunity should be taken advantage of to render the unit self-reliant in respect of them.

Accommodation for Troops.

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Instructions have been issued from the Horse Guards to general officers commanding districts to prepare a report showing how it is proposed to accommodate the various troops which will be assembled in the district when mobilization is ordered. These troops may be classed as follows:

1. Reservists joining at the places laid down in regulations.

2. Militia corps assembled at their respective head-quarters.

3. Yeomanry assembled at their respective head-quarters.

4. Infantry volunteer brigades assembled at their places of assembly.

5. The remaining volunteer corps assembled at their respective head-quarters. . . .

Small-Arms Ammunition.

For troops allotted to the field army the small-arms ammunition to be carried

with the unit is given in the field army establishments (home defense), and in the list of ordnance stores required by units on mobilization, a schedule of which is given in Appendix K of the "Mobilization Regulations."

Now, as previously stated, the mobilization supply of small-arms ammunition and the vehicles in which it is carried from the second regimental equipment of the unit: the mobilization supply of ammunition is the amount required to make up the complement per man to the number given for each unit in the field army establishments.

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The ammunition on corps charge at the time of mobilization will be taken with the unit, and a corresponding deduction made from what is required to be drawn as second regimental equipment as laid down in the tables for each unit. The ammunition on corps charge will consist of practice ammunition, drawn but unexpended, and the twenty rounds per man required to be kept up in peace-time in accordance with the "Equipment Regulations."

Units allotted to garrisons will bring with them the whole of the ammunition on corps charge, and will supplement this on arrival by whatever may be arranged for under the local defense scheme.

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Units to be formed on Mobilization.

The units to be formed on mobilization are,—

Brigade, divisional, and corps staffs; regimental staffs of corps artillery and corps engineers; mounted infantry; army signalers; ammunition columns; bearer companies and field hospitals; remount centres and sick-horse depots; stationary and general hospitals; post-office corps; military police.

The officers for the various staffs are detailed by the military secretary; the N. C. O.'s and men by the adjutant-general and deputy adjutant-general R. A. or R. E., as the case may be: the equipment is kept at the places shown in the mobilization tables; the general or other officer commanding each staff will issue his own orders as to the assembly of his staff, etc.

For brigade, divisional, or corps staffs, the A. S. C. provides transport, joining the staff units at their places of mobilization.

In the case of the regimental staffs the equipment is drawn with the transport, and the horses supplied by the inspector-general of the remounts.

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The equipment (except clothing and necessaries) is kept by the O. S. D., the transport is provided by the A. S. C., the medical service is arranged by the general officer commanding the army corps: each army corps has one company of army signalers. The companies are formed on mobilization under orders from head-quarters.

Ammunition columns are required for the following services: corps troops ammunition column; infantry divisional ammunition column; cavalry brigade ammunition column.

Their composition is,—

Corps Troops. — Three officers (one major and two lieutenants); one hundred and eighty-one other ranks (including one warrant officer); two hundred and ten horses; thirty-two vehicles.

Infantry Corps. — Three officers (as above); one hundred and ninety-three other ranks; two hundred and twenty-two horses; thirty-eight vehicles.

Cavalry Brigade.—Three officers (and one veterinary officer); one hundred and five other ranks; one hundred and six horses; eighteen vehicles.

There are sixteen of these columns, represented in peace-time by a nucleus of one warrant officer and six men Royal Artillery, in charge of the equipment; horses are drawn in the same manner as for other units, from the centres given in the "mobilization tables."

The officers are detailed by the deputy adjutant-general R. A., the non-commissioned officers and men by the O. C. horse and field artillery, Woolwich, partly from men serving and partly from reservists: the former proceed with personal outfit (clothing and necessaries) direct from their batteries to the place of mobilization; the latter receive their clothing and necessaries at Woolwich,

and thence proceed to the place of mobilization. The first and second regimental equipment and the personal equipment is held at the place of mobilization by the O. S. D. in the immediate custody of the warrant officer of the column.

Bearer Companies and Field Hospitals.

These have practically no peace organization except on paper; and from this circumstance, combined with the somewhat complex detail which has to be carried out by medical officers, who change their stations with kaleidoscopic rapidity, the mobilization of these units promises to be an interesting experiment.

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The *Military Police* mobilize at Aldershot; they do not appear as separate units, being included in the staff units of the formations to which they are allotted; the same rule holds for the Ordnance Store Corps and the Post-office Corps.

Rations.

On the day when a unit leaves its peace-station for the place of concentration, the rations will be drawn as usual, but on the field service scale,—viz., one pound of preserved meat; one and a half pounds of bread or one pound of biscuit.

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Each man is also served out with an emergency ration (one pound one ounce meat biscuit), which he carries with his kit and does not touch without orders. One field ration is carried in the regimental supply-wagons for issue on arrival in camp or billets, and one field ration with the first line supply columns to replace issues.

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Fitness for Service.

With regard to the medical inspection of units on mobilization, any men found permanently unfit will at once be discharged under Section XIX. Queen's Regulations; men found temporarily unfit will be sent to hospital for treatment, or to the depot, or, in the case of yeomanry or volunteers, to their homes, according to the judgment of the commanding officer after receiving the medical report.

All soldiers considered by the commanding officer to be capable of bearing arms will be regarded as fit for service, provided that they have completed a recruit's course of musketry (in cases of men to whom this is applicable).

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Partial Mobilization of the Ninth Division of the Field Army and of the Southeastern Volunteer Infantry Brigade.

A most interesting experiment was carried out in the Southeastern District at Whitsuntide this year, in the mobilization on a peace footing of the Ninth Division of the field army in Ashdown Forest. . . .

The results of this muster of equipment were more satisfactory than was expected, though some deficiencies were brought to light.

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The net results of this partial mobilization were in the highest degree satisfactory. . . .

Not the least important of the results obtained was the facility for studying three different branches of the service,—viz., regulars, militia, and volunteers, each brigaded by themselves, but all working together on the same manœuvre ground. An object lesson of this kind is sometimes more convincing than the study of statistics and reports, even though the deductions may be somewhat different.

Extracts from the Discussion of Major Stone's Lecture.

Lord William Seymour.—In order to show how simple the regulations for mobilization have become, I have only to remind you of the state of chaos that generally existed when a force, however small, has been prepared for active service, and the number of letters and telegrams that must, I think, have driven the officers commanding and preparing that force out of their senses. On this occasion it may be interesting to know that from the first to the last but six letters passed from the Horse Guards to the Southeastern District, and from the day of mobilization to the finish but one telegram, and that was to report that the mobilization of the Ninth Division was completed on Saturday, the 22d May.

Lieutenant-Colonel Dooner.—It would be no easy matter arranging for the clothing and discipline of the large number of men who may be expected to join, and it must be remembered that in times of mobilization, in the case of apprehended invasion or approaching active service, there is always some little excitement, and the reservists would join with a considerable amount of money due to them. . . . It must not be forgotten that at present we send some two hundred and forty or two hundred and fifty men every year from the home to the foreign battalion.

The Doliber-Goodale Co.'s Annual Dinner.

THE annual dinner of the Doliber-Goodale Company, the proprietors of Mellin's Food, to their heads of departments and traveling men, was given on the 6th of December, 1893, at the Parker House, Boston.

In response to the special invitation from Mr. Doliber, the president of the company, all of the traveling men had turned from their different fields of labor, and had come together in Boston, the head-quarters of the business, each to make systematic and detailed report of his past year's work and to discuss with the home management the methods, plans, and efforts for his coming year's work.

It was a most natural and happy home-coming, and seemed almost like a family gathering, as the freedom of discussion, the quick response to Mr. Doliber's request for suggestions, and the enthusiasm shown by all present, told of the cordial relations and perfect confidence existing between the travelers and the manager of the company.

At the dinner, Mr. Doliber, the president, had the head of the table; the vice-president, Mr. Cheney, the foot; Mr. Delano, the right, and Mr. Hazeltine the left centre. Messrs. Cox. Snyder, Jones, C. M. Phelps, Robbins, Larrabee, Stone, and Goodwin completed the circle. The appearance of the table was strikingly novel, with its pyramid of foliage and choicest cut flowers, of which Mr. Doliber is so fond, and the menu and service were all that for two generations have made "Parker's" famous.

After the merriment which always accompanies a good dinner, speeches were in order, and as the Mellin's Food men are all good talkers and the dinner had been a success, there was no backwardness in coming forward to carry out this part of the programme.

Mr. Stone set the ball rolling with a toast to the president and the heads of departments, which brought out hearty and appreciative responses, first from Mr. Doliber, and following him the several members of his staff of assistants who are at the head of the different departments of the work in the home office; and then each one of the traveling men, as he felt moved to speak, gave to the others his ideas of the work from his own personal point of view, each telling his belief and conviction as to the best ways to accomplish the results desired under the widely varying conditions prevailing in their different fields of effort.

The last hour was devoted to a wholly unexpected and successful demonstration of the latent musical ability of the party. Messrs. Delano, Stone, and Larrabee "spelling" each other at the piano, and music and song held sway until, with rousing and heartfelt cheers for Mr. Doliber and for Mellin's Food, these earnest and loyal co-workers separated, strengthened in purpose, each with greater confidence and increased zeal, to take up his own work again with the determination to accomplish all, and more if possible, than the management had expected of him, as a natural return for the confidence and compliment shown him in this meeting with his fellow-workers and employer on common ground.

Perhaps one secret of the steady growth and increasing prosperity of the Mellin's Food business is to be discovered in this incident. Mr. Doliber's breadth of view, honesty of purpose, and perfect sincerity, which make him willing to listen to any and all suggestions that even the youngest and least experienced of his employés might offer, have no doubt kept the entire force of workers in intelligent harmony with those whose responsibility it is to direct them, and in this way better and larger and more permanent results have been secured.

There is no position in commercial life,

as business is done to-day, so hard to sustain successfully as that of "traveler," for the reason that it is possible for him to find himself so quickly "out of touch" with the home people. He wants to carry out their ideas, and intends to do so, but too often confusion and misunderstanding arise from the care of the work of the traveling men having been given to an irresponsible correspondent who is personally impatient of anything but routine work and is not interested in the ideas and suggestions of the men who, in their different fields, are in reality the very pulse of the business.

No clearer and more unmistakable instance of Mr. Doliber's sagacity and sound business judgment can be asked for than the fact that to the work of, and correspondence with, the travelling men he delegates the best thought and ripest experience among his associates in the management of the business.

THE world now recognizes the Columbian Exposition as one of the most stupendous of educational influences, especially for the young. Very early in the day its originators and its builders decided to avoid all such sensational features as would merely arouse wonder, without leading to inquiry and improvement of the mind. The choice of the attractions offered by all the nations and peoples of the world, the classification of the exhibits, and the work of organization, from first to last, were all guided by this motive, a determination to present a great object lesson to the world in its departments of art, science, industry, intellect, and religion.

But in order that education should derive the greatest advantage from this store-house of human knowledge a textbook is necessary, and fortunately there is one work which has clearly earned its title to that distinction. "The Book of the Fair," by Hubert Howe Bancroft (The Bancroft Company, Publishers, Auditorium Building, Chicago), is for all educational purposes better than the Fair itself, just as one can learn more from a good book on geology than from even the everlasting hills. "The Book of the Fair" presents the entire Exposition within reasonable limits, in a clear and condensed manner, and in permanent form. He who has this book has the Fair always with him, and may draw from it as from a living spring of learning.

MR. WARNER S. YOUNG, of New York, has been commissioned second lieutenant Company H, Ninth Regiment, N. G. S. N. Y. He was formerly private and corporal in Company B of the Seventy-first Regiment, and has been intimately associated with the National Guard of New York for the past six years, being a charter member of Company B, Seventy-first Regiment. Mr. Young is a courteous, honorable, and affable gentleman, a thorough worker, and an enthusiast in rifle practice, in which his company will be sure to show great improvement under his direction, and they can be congratulated in inducing him to accept a commission.

SOME Washington lawyers know a good deal about pensions. That is a complicated subject, and a man who is familiar with it has no time to be very expert in anything else. Some other lawyers are well acquainted with patents, but know nothing about pensions. Others know something of the land laws, but are innocent of ideas concerning pensions and patents.

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Maine Commandery.

Stated meeting held March 7, 1894.

To the First Class.—Major Eliphalet Rowell, U.S.V.; Captain Sylvester B. Partridge, U.S.N.; Acting Ensign John Dennett, U.S.V.; Captain George Cary, U.S.V.; Lieutenant John H. Gifford, U.S.V.

Massachusetts Commandery.

Stated meeting held February, 7, 1894.

To the First Class.—Colonel James T. P. Bucklin, U.S.V.; Acting Assistant Surgeon John G. Dearborn, U.S.N.

To the First Class (in succession).—Mr. Tucker Daland.

To the First Class (by inheritance).—Mr. Edwin H. Abbott, Mr. George W. Williams.

To the Second Class.—Mr. James F. Pope.

Stated meeting held March 7, 1894.

To the First Class.—Lieutenant Moulton Batchelder, U.S.V.; Chaplain Edward L. Clark, U.S.V.; General Albion P. Howe, U.S.A.

To the First Class (by inheritance). Mr. Morgan G. Bulkeley.

California Commandery.

Stated meeting held February 21, 1894.

To the First Class.—Captain Geo. Stone, U.S.V.

To the First Class (by inheritance). Mr. Frederick Denicke.

To the Second Class.—Lieutenant Clement A. F. Flagler, U.S.A.

District of Columbia Commandery.

Stated meeting held March 7, 1894.

To the First Class.—Pay-Director Thos. T. Caswell, U.S.N.

To the Second Class.—Lieutenant Geo. Bell, Jr., U.S.A.; Mr. Rufus M. Gibbs.

Wisconsin Commandery.

Stated meeting held March 7, 1894.

To the First Class.—Major C. P. Larkin, U.S.V.; General Henry Harnden, U.S.V.

Illinois Commandery.

Stated meeting held February 8, 1894.

To the First Class.—Captain Axel S. Adams, Captain C. H. Conrad, Lieutenant R. M. Parker.

To the First Class (by inheritance). Mr. Stephen M. Wirts.

To the Second Class.—Mr. Charles W. Jenkins.

Minnesota Commandery.

Stated meeting held March 13, 1894.

To the First Class.—Major John D. Black, U.S.V.; Captain Mortimer R. Flint, U.S.V.

To the Second Class.—Lehigh M. French.

Missouri Commandery.

Stated meeting held March 3, 1894.

To the First Class.—Captain Louis Benecke, U.S.V.

TRANSFERS.

California Commandery.

Colonel H. C. Egbert to Ohio Commandery; Captain John W. Summerhayes to New York Commandery;

Captain **Charles F. Williams** to Pennsylvania Commandery; Commodore **Francis A. Cook** to District of Columbia Commandery.

Michigan Commandery.

Lieutenant **Eugene O. Fechet** to Washington Commandery.

Missouri Commandery.

Chaplain **George Robinson**, U.S.A., to Kansas Commandery; Captain **A. C. Widdicombe** to District of Columbia Commandery.

NECROLOGY.

Maine Commandery.

Major **William B. Lapham**, U.S.V., February 22, 1894.

California Commandery.

Captain **Richard H. Orton**, January 8, 1894; Lieutenant **Charles Gladding**, January 17, 1894; Lieutenant **Charles E. Blake**, January 17, 1894.

Vermont Commandery.

Commodore **Edwin T. Woodward**, February 22, 1894.

THE following is promulgated for the information of the Order:

CHANGES IN MEMBERSHIP QUARTER ENDING JANUARY 31, 1894.

COMMANDERY OF	GAIN.			LOSS.			NET GAIN.			NET LOSS.			MEMBERSHIP, January 31, 1894.			
	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	First Class.	Second Class.	Third Class.	Total.
Pennsylvania	5			6						1			1011	115	6	1132
New York	19	1		11	1		8						1052	61	4	1117
Maine	3			3									136	7		143
Massachusetts	19	2		14	4		5				2		794	55	14	863
California	9			26	1					17	1		577	47	11	635
Wisconsin	2			3	1					1	1		203	6	2	211
Illinois	8	2		6			2	2					488	58	5	551
District of Columbia	37	1		12	2		25				1		606	36	1	643
Ohio	9	1		10	1					1			845	58	4	907
Michigan	4			1	1		3				1		261	11	3	275
Minnesota	6	2		5		1	1	2				1	284	23	3	310
Oregon	2			3						1			79	8		87
Missouri	1			4						3			279	20	5	304
Nebraska				3						3			138	15	3	156
Kansas	2	3		4				3		2			240	24	4	268
Iowa	3			2			1						152	8	4	164
Colorado	3	2		3	1			1					175	16		191
Indiana	4	1		2			2	1					207	15	1	223
Washington	2			2									47	13		60
Vermont	1			2						1			88	12		100
Totals	139	15		122	12	1	47	9		30	6	1	7662	608	70	8340

NET GAIN.

First Class	17	
Second Class	3	
		20
Less Loss in Third Class		1
Total net gain		19

Total October 31, 1893 8321

Total January 31, 1894 8340

By command of LUCIUS FAIRCHILD, Brigadier-General U.S.V.,
Commander-in-Chief.

JOHN P. NICHOLSON, Brevet Lieutenant-Colonel U.S.V.,
Recorder-in-Chief.

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nervous headache
dull headache
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dizziness (vertigo)
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fluttering of the heart (palpitation)
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NEW SERIES.

VOL. XI.—MAY, 1894.—No. 5.

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1510 CHESTNUT ST., PHILADELPHIA.

NEW YORK: BRENTANO'S, 5 Union Square. BOSTON: W. B. CLARKE & Co., 340-344 Washington St.

WASHINGTON: BRENTANO'S, 1015 Pennsylvania Avenue.

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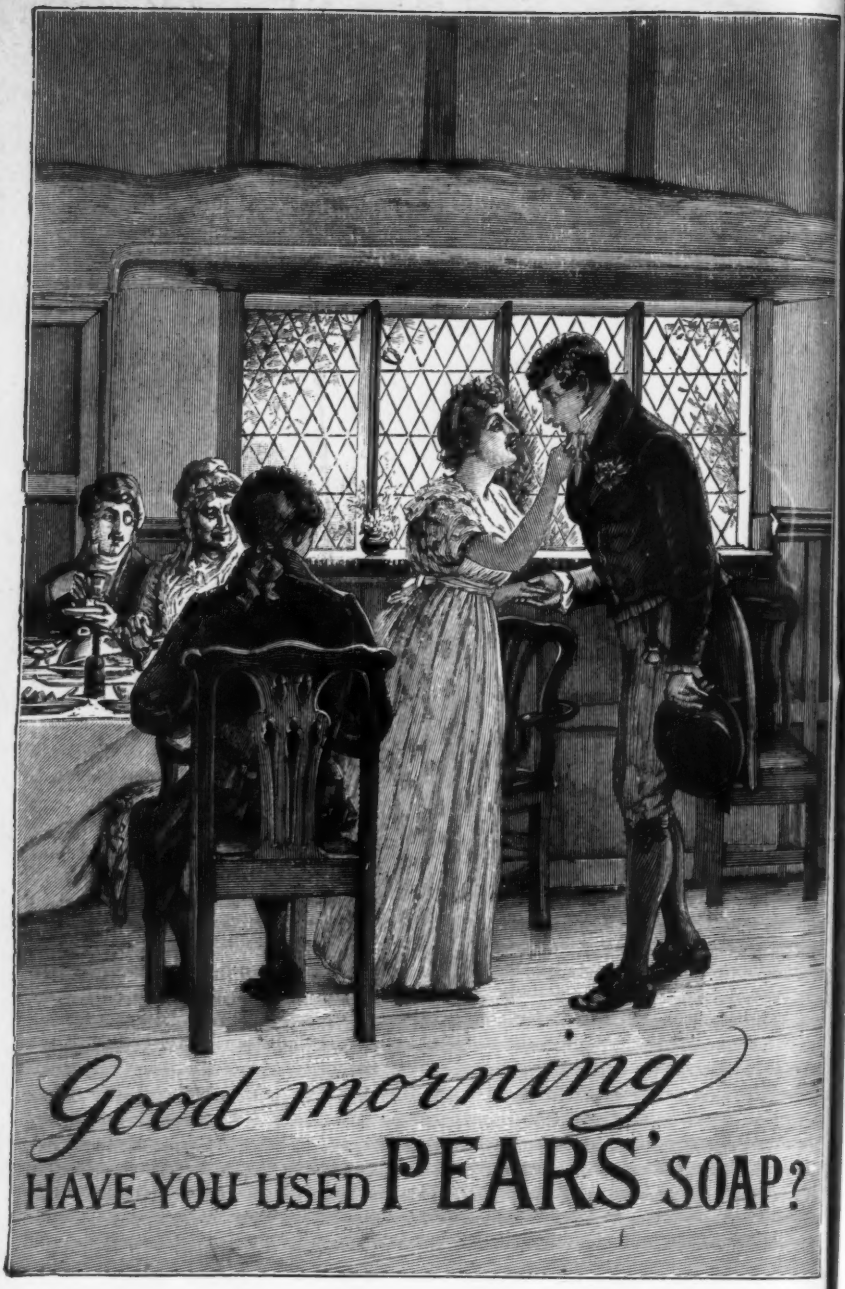
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Statement of Business for 1893.

Net Ledger Assets, January 1, 1893		$21,730,030 64
RECEIPTS.		
For Premiums	$3,048,004 83	
For Interest, Rents, and Profit and Loss	1,118,166 24	
	$4,166,171 07	
Less Taxes	53,683 06	4,112,488 01
		$25,842,518 65
DISBURSEMENTS.		
Death Claims	$1,456,948 00	
Matured and Discounted Endowments	254,490 00	
Cancelled and Surrendered Policies	526,373 91	
Distribution of Surplus	668,976 30	
Total paid to Policy-holders	$2,906,788 21	
Amount paid for Commissions to Agents, Salaries, Medical Fees, Advertising, Printing, Stationery, and all other Incidental Expenses at the Home Office and at Agencies	535,932 31	
Amount paid for Accrued Interest on Investments purchased during the year	14,933 61	3,457,654 13
Net Ledger Assets, December 31, 1893		$22,384,864 52
Market Value of Securities over Ledger Cost	$390,975 84	
Interest and Rents accrued December 31, 1893	251,342 05	
Net Premiums in course of collection	176,980 17	819,298 06
Gross Assets, December 31, 1893		$23,204,162 58
LIABILITIES.		
Reserve at Massachusetts Standard, 4 per cent	$21,244,871 21	
Balance of Distributions unpaid	112,749 14	
Death and Endowment Claims approved	179,907 00	21,537,527 35
		$1,666,635 23

Every policy has endorsed thereon the cash surrender and paid-up insurance values to which the insured is entitled by the Massachusetts statute. ***Life-Rate Endowment*** policies are issued at the old life-rate premium. ***Annual Cash*** distributions are paid upon ***all*** policies.

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